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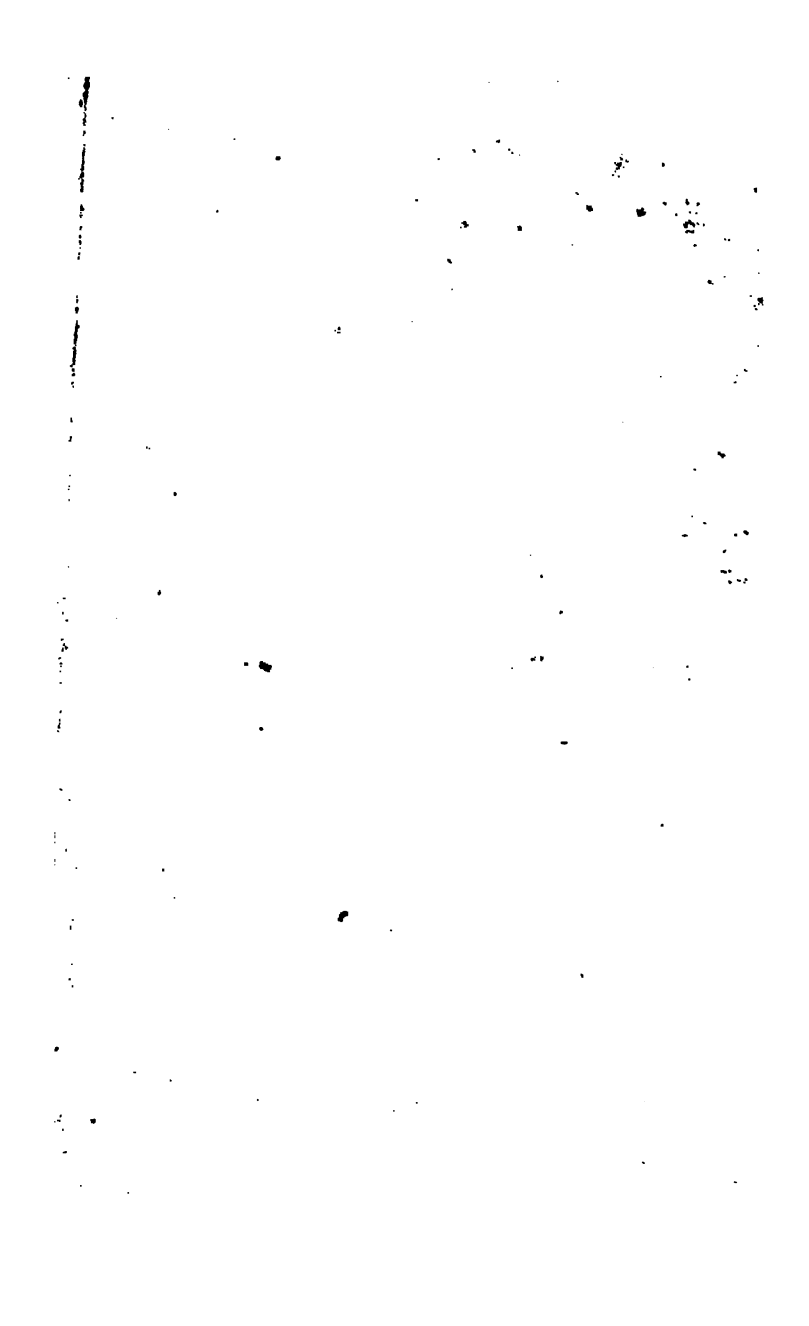
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MANUAL
OF
MATHEMATICAL TABLES.

BY

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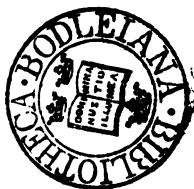
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INTRODUCTION.

1. Definition of Logarithms.—2. The Common System.—3. Properties of Logarithms.—4. Logarithmic Tables.—5. Multiplication by Logarithms.—6. Division by Logarithms.—7. Involution by Logarithms.—8. Evolution by Logarithms.—9. Tables of Logarithmic Sines.—10. Gauss's Logarithms.

1. Definition of Logarithms.—Let any number a be raised to the power x , and let the result be N ; then

$$a^x = N$$

In this equation x is said to be the logarithm of the number N to the base a ; and therefore

$$x = \log_a N$$

2. The Common System.—The base of the Common System, or, as it is sometimes called, Briggs' System, is 10. If this number be raised to the powers, 0, 1, 2, 3, 4, &c., we obtain the series of numbers, 1, 10, 100, 1000, 10000, &c. Thus:

$$\begin{aligned} 10^0 &= 1 \\ 10^1 &= 10 \\ 10^2 &= 100 \\ 10^3 &= 1000 \end{aligned}$$

&c., &c.

Therefore,

$$\begin{aligned} \log 1 &= 0 \\ \log 10 &= 1 \\ \log 100 &= 2 \\ \log 1000 &= 3 \end{aligned}$$

&c., &c.

It is evident that for numbers intermediate to these, the powers to which 10 must be raised, must lie between the numbers of the series,

INTRODUCTION.

0, 1, 2, 3, 4, &c. Thus, for all numbers lying between 100 and 1000, the corresponding power of 10 being greater than 2, and less than 3, must be 2, increased by some decimal fraction; for numbers lying between 1000 and 10000, must be 3, increased by some decimal fraction; and so on.

The logarithms, therefore, of intermediate numbers consist of an integer and of a decimal part; the decimal part alone is registered in the Tables, and is called the *Mantissa*; the integer part, which is called the *Characteristic*, is not entered, but may be found by

RULE I.

The characteristic of the logarithm of a number greater than unity is one less than the number of the digits of its integer part.

Thus, the characteristic of the logarithm of 849 is 2; for as this number lies between 100 and 1000, its logarithm must lie between 2 and 3. The mantissa, by referring to the Tables, is found to be 92891; therefore

$$\log 849 = 2.92891$$

The logarithms of numbers less than unity are negative, as may be seen from the following table :

$$\begin{aligned} 10^{-1} &= \frac{1}{10} = 0.1 \\ 10^{-2} &= \frac{1}{100} = 0.01 \\ 10^{-3} &= \frac{1}{1000} = 0.001 \\ 10^{-4} &= \frac{1}{10000} = 0.0001 \\ &\&c. \qquad \qquad \&c. \end{aligned}$$

It follows from this, that the characteristics of the logarithms of all numbers less than unity are negative, and may be found by

RULE II.

The characteristic of the logarithm of a number less than unity, and reduced to the decimal form, is negative, and one greater than the number of ciphers following the decimal point.

A negative characteristic is denoted by writing over it the negative sign; thus, $\bar{1}$, $\bar{2}$, $\bar{3}$, &c. The reason of the rule may be seen from inspecting the preceding table of values of negative powers of 10, or perhaps more clearly by considering a particular case; for example,

$$\log 849 = 2.92891$$

therefore

$$849 = 10^{2.92891}$$

INTRODUCTION.

If we divide each side of this equation successively by 10, we obtain,

$$\begin{aligned} 84.9 &= 10^{1.92891} \\ 8.49 &= 10^{0.92891} \end{aligned}$$

from which it follows that

$$\begin{aligned} \log 84.9 &= 1.92891 \\ \log 8.49 &= 0.92891 \end{aligned}$$

This corresponds with the rule given for determining the characteristic of the logarithm of a number greater than unity. If we continue the division of each side by 10, we obtain

$$\begin{aligned} 0.849 &= 10^{\bar{1}.92891} \\ 0.0849 &= 10^{\bar{2}.92891} \\ 0.00849 &= 10^{\bar{3}.92891} \\ &\&c. \qquad \&c. \end{aligned}$$

From which it follows that

$$\begin{aligned} \log 0.849 &= \bar{1}.92891 \\ \log 0.0849 &= \bar{2}.92891 \\ \log 0.00849 &= \bar{3}.92891 \\ &\&c. \qquad \&c. \end{aligned}$$

From this it appears that the negative characteristics are given by the rule in question. It also appears that the logarithms of all numbers, *consisting of the same significant figures*, have the same mantissa; and that the characteristic depends solely on the position of the decimal point.

3. Properties of Logarithms.—We shall now demonstrate four general propositions, from which the rules for using logarithmic tables in numerical computations are derived.

PROPOSITION I.

The logarithm of the product of two numbers is equal to the sum of the logarithms of the numbers.

If the numbers be N and M , let $n = \log N$, and $m = \log M$ to any base a , then by the definition,

$$\begin{aligned} N &= a^n \\ M &= a^m \end{aligned}$$

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By multiplication,

$$N \times M = a^{n+m}$$

therefore,

$$\log N \times M = n + m = \log N + \log M.$$

PROPOSITION II.

The logarithm of the quotient of two numbers is equal to the difference of the logarithms of the numbers.

By division.

$$\frac{N}{M} = a^{n-m}$$

therefore

$$\log \frac{N}{M} = n - m = \log N - \log M$$

PROPOSITION III.

The logarithm of the p^{th} power of a number is equal to p times the logarithm of the number.

If we raise to the p^{th} power each side of the equation

$$N = a^n$$

we obtain

$$N^p = a^{pn}$$

therefore

$$\log N^p = pn = p \log N$$

PROPOSITION IV.

The logarithm of the p^{th} root of a number is equal to the p^{th} part of the logarithm of the number.

If we take the p^{th} root of each side of the equation

$$N = a^n$$

we obtain

$$\sqrt[p]{N} = \sqrt[p]{a^n}$$

therefore

$$\log \sqrt[p]{N} = \frac{n}{p} = \frac{\log N}{p}$$

4. Logarithmic Tables.—If the number be given, its logarithm may be found by the following rules.

INTRODUCTION.

If the number consist of less than five figures, we proceed by

RULE III.

With the given number enter the column marked N; and opposite will be found the mantissa. To this prefix the characteristic.

The result will be the required logarithm.

EXAMPLES.

- | | | | |
|----|-----------------------|----------|----------------------|
| 1. | Find the logarithm of | 3562. | <i>Ans.</i> 3.55169. |
| 2. | " | " 5621. | <i>Ans.</i> 3.74981. |
| 3. | " | " 832.5. | <i>Ans.</i> 2.92038. |
| 4. | " | " 13.54. | <i>Ans.</i> 1.13162. |

If the number consist of more than four figures,

RULE IV.

Find the mantissa corresponding to the first four figures. With the additional figures, one by one, enter the column PP under the proper tabular difference, and add the corresponding proportional parts to the mantissa first found. Prefix the characteristic.

The result will be the required logarithm.

EXAMPLES.

1. Find the logarithm of 24536.

Mantissa of 2453 =	38970	17
	102	
	<hr/>	6 10.2
log 24536 =	4.389802	

2. Find the logarithm of 189637.

Mantissa of 1896 =	27784	23
	69	
	161	
	<hr/>	3 6.9
		7 16.1
log 189637 =	5.277928	

3. Find the logarithm of 20.3643.

Mantissa of 2036 =	30878	21
	84	
	63	
	<hr/>	3 6.3
		4 8.4
log 20.3643 =	1.308872	

INTRODUCTION.

If the logarithm be given, the number which corresponds to it is found by the following rules.

When the mantissa can be found in the tables, we proceed by

RULE V.

- 1°. *With the given mantissa enter the column marked Log.*
- 2°. *Take from the column N the corresponding four figures.*
- 3°. *From the characteristic, find the position of the decimal point.*

The result will be the required number.

EXAMPLES.

1. Given the logarithm 2.93120; find the number.
Ans. 853.5.
 2. Given the logarithm 1.72534; find the number.
Ans. 53.13.
 3. Given the logarithm 5.54986; find the number.
Ans. 354700.
 4. Given the logarithm $\bar{2}.85986$; find the number.
Ans. 0.07242.
 5. Given the logarithm 0.54741; find the number.
Ans. 3.527.
-

When the mantissa cannot be found in the tables, we proceed by

RULE VI

- 1°. *Find the next lower mantissa, and note the four corresponding figures in column N.*
- 2°. *With the difference between this and the proposed mantissa, enter the table of proportional parts, and find the additional figures.*
- 3°. *Place the decimal point according to the characteristic.*

The result will be the required number.

INTRODUCTION.

EXAMPLES.

1. Given the logarithm 2.31989; find the number.

$$\begin{array}{r} \phantom{\text{mantissa of } 2088} 31989 \\ \text{mantissa of } 2088 = 31973 \\ \hline 16 \end{array}$$

	21
1	2.1
2	4.2
3	6.3
4	8.4
5	10.5
6	12.6
7	14.7
8	16.8
9	18.9

With the difference 16 we enter the column PP under the tabular difference 21, and find that 7 is the first additional figure, as it corresponds to 14.7, the proportional part next lower than 16; the difference between this number and 16, when multiplied by 10, i. e. 13, shows that 6 is the next figure, as it corresponds to 12.6, which is next lower than 13.

To the figures 2088 must therefore be annexed 76, and as the characteristic is 2, the number required is—

Ans. 208.876.

2. Given the logarithm 0.19237; find the number.

Ans. 1.55728.

3. Given the logarithm 1.56342; find the number.

Ans. 0.36595.

5. Multiplication by Logarithms.—In multiplication we proceed by

RULE VII.

1°. Find the logarithms of the numbers, the product of which is required.

2°. Add these together; the sum will be the logarithm of the product.

3°. Find from the tables the corresponding number.

This will be the required product.

INTRODUCTION.

EXAMPLES.

1. Find the product of 43.26 and 12.738.

$$\begin{array}{r}
 \log 43.26 = 1.63609 \\
 \log 12.73 = 1.10483 \\
 \text{PP for 8} = \quad \quad 272 \\
 \hline
 \text{mantissa of } 5510 = \begin{array}{r} 2.74119\cancel{x} \\ 74115 \end{array} \\
 \hline
 \text{difference} = \quad \quad 4 \quad \text{tab. diff.} = 8 \\
 \text{additional figure} = 5
 \end{array}$$

Ans. 551.05.

2. Find the product of 0.00256 and 346.57.

$$\begin{array}{r}
 \log 0.00256 = \bar{3}.40824 \\
 \log 346.5 = 2.53970 \\
 \text{PP for 7} = \quad \quad 91 \\
 \hline
 \text{mantissa of } 8872 = \begin{array}{r} \bar{1}.94803\cancel{x} \\ 94802 \end{array} \\
 \hline
 \text{difference} = \quad \quad 1 \quad \text{tab. diff.} = 5 \\
 \text{additional figure} = 2
 \end{array}$$

Ans. 0.88722.

6. **Division by Logarithms.**—In division we proceed by the following—

RULE VIII.

1°. *Find the logarithms of the numbers the quotient of which is required.*

2°. *Subtract the logarithm of the divisor from that of the dividend; the difference will be the logarithm of the quotient.*

3°. *Find from the tables the corresponding number.*

This will be the required quotient.

INTRODUCTION.

EXAMPLES.

1. Find the quotient of 876.3 by 32.56.

$$\begin{array}{r} \log 876.3 = 2.94265 \\ \log 32.56 = 1.51268 \end{array}$$

$$\begin{array}{r} 1.42997 \\ \text{mantissa of } 2691 = 42991 \end{array}$$

$$\begin{array}{rcl} \text{difference} & = & 6 \qquad \text{tab. diff.} = 17 \\ & & \text{additional figures} = 35 \end{array}$$

Ans. 26.9135.

7. **Involution by Logarithms.**—In involution we proceed by the following—

RULE IX.

1°. Find the logarithm of the number which is to be raised to the given power.

2°. Multiply this logarithm by the index of the given power; the product will be the logarithm of the required power.

3°. Find from the tables the corresponding number.

This will be the required power.

EXAMPLE.

1. Find the fourth power of 8.7.

$$\begin{array}{r} \log 8.7 = 0.93952 \\ 4 \\ \hline \log 5729 = 3.75808 \end{array}$$

Ans. 5729.

2. Find the cube of 0.03564.

$$\begin{array}{r} \log 0.03564 = \bar{2}.55194 \\ 3 \\ \hline \bar{5}.65582 \end{array}$$

$$\bar{5} = 3 \times \bar{2} + 1$$

Ans. 0.000045171.

INTRODUCTION.

8. Evolution by Logarithms.—In evolution we proceed by the following—

RULE X.

- 1°. Find the logarithm of the number whose root is to be found.
- 2°. Divide this logarithm by the index of the given root; the quotient will be the logarithm of the required root.
- 3°. Find from the tables the corresponding number.

EXAMPLES.

1. Find the fifth root of 56734.

$$\begin{array}{r}
 \log 5673 = 4.75381 \\
 \text{PP for 4} = \quad \quad 32 \\
 \hline
 5)4.75384\cancel{7} \\
 \hline
 0.95077 \\
 \text{mantissa of } 8928 = 95075 \\
 \hline
 \text{difference} = 2 \quad \text{tab. diff} = 5 \\
 \text{additional figure} = 4 \\
 \text{Ans. } 8.9284.
 \end{array}$$

2. Find the cube root of 0.0003256.

$$\begin{array}{r}
 \log 0.0003256 = 3)\bar{4}.51268 \\
 \hline
 2.83756 \\
 \text{Ans. } 0.068795.
 \end{array}$$

In cases like the preceding, in which the characteristic is negative, and not divisible by the given index, it is necessary to *increase the negative characteristic by as many units as will render it divisible, and then carry so much to the decimal*. Thus, in the preceding example we consider

$$\begin{array}{r}
 \bar{4} = \bar{6} + 2; \text{ and therefore} \\
 3)\bar{6} + 2.51268 \\
 \hline
 2 + 0.83756
 \end{array}$$

INTRODUCTION.

9. Tables of Logarithmic Sines.—In order to apply logarithmic calculations to trigonometrical quantities, it is necessary to construct tables of the logarithms of the natural sines, cosines, &c. As all the sines and cosines, all the tangents from 0° to 45° , and all the cotangents from 45° to 90° , are less than unity, the logarithms of these quantities have negative characteristics. In order to avoid the necessity of entering negative numbers, 10 is added to every logarithm before it is registered in the tables of logarithmic sines. Thus,

$$\sin^2 45^\circ = 0.5$$

Therefore

$$\text{logarithm of } \sin 45^\circ = \bar{1}.84949$$

If to this we add 10, we find the *tabular log* $\sin 45^\circ$

$$\log \sin 45^\circ = 9.84949$$

To find the log sine, log cosine, log tangent, or log cotangent, of an angle.

RULE XI.

1°. Find from the tables the log sine, log cosine, &c., which corresponds to the degrees and minutes.

2°. Multiply the tabular difference by the seconds, and divide by 60.

3°. If the required quantity be a log sine or log tangent, add the result to the last figures obtained in 1°; if it be a log cosine or log cotangent, subtract.

The result will be the required log sine, log cosine, &c.

EXAMPLES.

1. Find the log sine of $6^\circ 36' 27''$.

$$\begin{array}{r} \log \sin 6^\circ 36' = 9.06046 \\ \quad \quad \quad 49 \\ \hline 9.06095 \end{array} \quad \begin{array}{r} (\text{Tab. diff.} = 109) \times 27 \\ \hline 60 \end{array} = 49$$

$$\text{Ans. } \log \sin 6^\circ 36' 27'' = 9.06095.$$

2. Find the log cosine of $66^\circ 42' 15''$.

$$\begin{array}{r} \log \cos 66^\circ 42' = 9.59720 \\ \quad \quad \quad 7 \\ \hline 9.59713 \end{array} \quad \begin{array}{r} (\text{Tab. diff.} = 30) \times 15 \\ \hline 60 \end{array} = 7$$

$$\text{Ans. } \log \cos 66^\circ 42' 15'' = 9.59713.$$

INTRODUCTION.

The log sine, log cosine, log tangent, or log cotangent, being given, to find the angle.

RULE XII.

1°. Find in the tables the next lower log sine, log cosine, &c., and note the corresponding degrees and minutes.

2°. Subtract this from the given log sine, log cosine, &c., multiply the difference by 60, divide by the tabular difference, and consider the result as seconds.

3°. If the given value be that of a log sine or log tangent, add these seconds to the degree and minutes; if it be that of a log cosine or log cotangent, subtract.

The result will be the required angle.

EXAMPLES.

1. Given log sine = 9.35624; find the angle.

$$\begin{array}{r}
 \log \sin 13^{\circ} 07'. \quad \begin{array}{r} 9.35624 \\ 9.35590 \\ \hline 34 \end{array} \\
 \text{Tab. diff.} = 54 \quad \begin{array}{r} 34 \times 60 \\ \hline 54 \end{array} = 38'' \\
 \text{Ans. } 13^{\circ} 07' 38''.
 \end{array}$$

2. Given log cotang = 10.11234; find the angle.

$$\begin{array}{r}
 \log \cot 37^{\circ} 41'. \quad \begin{array}{r} 10.11234 \\ 10.11214 \\ \hline 20 \end{array} \\
 \text{Tab. diff.} = 26. \quad \begin{array}{r} 20 \times 60 \\ \hline 26 \end{array} = 46'' \\
 \text{Ans. } 37^{\circ} 40' 14''.
 \end{array}$$

As the tabular log is equal to the true logarithm, *plus* 10, it is evident that before using log sines, log cosines, &c., in numerical computations, it is necessary to subtract 10 from the values entered in the tables.

10. Gauss's Logarithms.—By means of these tables the logarithms of the sum and difference of two numbers may be immediately derived from the logarithms of the numbers themselves. The table consists of three columns, **A**, **B**, and **C**. The column **A** extends from 0 to 2, proceeding by thousands; from 2 to 3.4, proceeding by hun-

INTRODUCTION.

dreds; and from 3.4 to 5, proceeding by tenths. Here it terminates, since the numbers in the column **B** vanish, and those in column **C** become equal to those in **A** for 5 and all other higher numbers. The construction of the table is explained as follows:—If we suppose any number *A*, in the first column = $\log m$, then for this and the corresponding numbers *B* and *C* in the second and third columns, we have

$$A = \log m$$

$$B = \log \left(1 + \frac{1}{m} \right)$$

$$C = \log (1 + m)$$

From which it follows that

$$C = A + B$$

Being given the logarithms of two numbers *a* and *b*, of which the first is greater than the second, to find the logarithm of their sum.

RULE XIII.

- 1°. *Subtract the less from the greater logarithm.*
- 2°. *With the difference enter column **A**, and find the corresponding number in column **B**.*
- 3°. *Add the number so found to the greater logarithm.*

The result is the logarithm of the sum.

The rule may be proved as follows:—Let $a = mb$, then

$$a + b = a \left(1 + \frac{b}{a} \right)$$

or

$$a + b = a \left(1 + \frac{1}{m} \right)$$

Taking the logarithms of both sides, and substituting for $\log \left(1 + \frac{1}{m} \right)$ its equal *B*,

$$\log (a + b) = \log a + B$$

In a similar manner it may be shown that

$$\log (a + b) = \log b + C$$

INTRODUCTION.

Being given the logarithms of two numbers, as before, to find the logarithm of their difference.

RULE XIV.

1°. Subtract the less from the greater logarithm.

2°. With the difference enter the column **B**, or the column **C**, as the case requires, and find the corresponding number in the other of these two columns.

3°. Subtract the number so found from the greater logarithm.

The result is the logarithm of the difference.

This rule may be proved as follows:—

CASE I.

If $a > 2b$, and therefore $\log a - \log b > 0.30103$, the difference of the logarithms will be found in column **C**; therefore assuming

$$\frac{a}{b} = 1 + m$$

we have

$$\frac{a - b}{a} = \frac{1}{1 + \frac{1}{m}}$$

from which it follows that

$$\log(a - b) = \log a - B$$

In a similar way it may be shown that

$$\log(a - b) = \log b + A$$

CASE II.

If $a < 2b$, and therefore $\log a - \log b < 0.30103$, the difference of the logarithms will be found in column **B**; therefore assuming

$$\frac{a}{b} = 1 + \frac{1}{m}$$

therefore

$$\frac{a - b}{a} = \frac{1}{1 + m}$$

From which it follows that

$$\log(a - b) = \log a - C$$

In a similar way it may be shown that

$$\log(a - b) = \log b - A$$

INTRODUCTION.

EXAMPLES.

1. The logarithms of two numbers are 0.68172 and 0.53672; find the logarithm of their sum.

$$\begin{array}{r} 0.68172 \\ 0.53672 \\ \hline \end{array}$$

With the difference = 0.14500 enter column A.

$$B = 0.23455$$

$$\log \text{ of sum} = 0.91627$$

2. The logarithms of two numbers are 0.81965 and 0.73621; find the logarithm of their difference.

$$\begin{array}{r} 0.81965 \\ 0.73621 \\ \hline \end{array}$$

With the difference = 0.08344 enter column B.

$$C = 0.75744$$

$$\log \text{ of difference} = 0.06221$$

In these examples the differences of the logarithms are found in the tables. If not, the method of proportional parts must be applied to the tabular differences, as in the following—

EXAMPLES.

1. The logarithms of two numbers are 0.36173 and 0.23045; find the logarithm of their sum.

$$\begin{array}{r} 0.36173 \\ 0.23045 \\ \hline 0.13128 \end{array} \quad \begin{array}{r} 0.131 \\ 42 \times 0.28 = \\ \hline 12 \end{array} \quad \begin{array}{r} 0.24045 \\ 12 \\ \hline 0.24033 \\ 0.36173 \\ \hline \end{array}$$

$$\log \text{ sum } 0.60206$$

2. The logarithms of two numbers are 0.89042 and 0.24797; find the logarithm of their difference.

$$\begin{array}{r} 0.89042 \\ 0.24797 \\ \hline 0.64245 \\ 0.64231 \\ \hline \end{array} \quad \begin{array}{r} 14 \times 23 = 0.11231 \\ 77 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 0.11227 \\ 0.89042 \\ \hline \end{array}$$

$$14$$

$$\log. \text{ diff. } = 0.77815$$

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As the tabular differences corresponding to the columns **B** and **C** are complementary, that is to say, their sum is always equal to 100, or 1000, or 10000, the method of proportional parts may be applied as follows, having regard to one of these differences only.

RULE XV.

1°. From the difference of the logarithms take the next lower log which can be found in either of the columns **B** or **C**.

2°. To the remainder annex two, three, or four ciphers, as the case requires, and divide by the tabular difference.

3°. From the quotient take the remainder.

The result is always to be subtracted from the corresponding logarithm in the other column.

EXAMPLE.

1. The logarithms of two numbers 0.25042 and 0.19033; find the logarithm of their difference.

$$\begin{array}{r}
 0.25042 \\
 0.19033 \\
 \hline
 0.06009 \\
 0.06004 \\
 \hline
 13)500 \quad (38 \\
 \quad \quad 5 \\
 \quad \quad \hline
 \quad \quad 33 \\
 \log \text{ diff.} = \bar{1}.36171
 \end{array}
 \qquad
 \begin{array}{r}
 0.88904 \\
 33 \\
 \hline
 0.88871 \\
 0.25042 \\
 \hline
 \hline
 \end{array}$$

2. The logarithms of two numbers are 3.44134 and 1.21352; find the logarithm of their difference.

$$\begin{array}{r}
 3.44134 \\
 1.21352 \\
 \hline
 2.22782 \\
 2.22261 \\
 \hline
 994)521000(524 \\
 \quad \quad 521 \\
 \quad \quad \hline
 \quad \quad 3 \\
 \log \text{ diff.} = 3.43876
 \end{array}
 \qquad
 \begin{array}{r}
 0.00261 \\
 3 \\
 \hline
 0.00258 \\
 3.44134 \\
 \hline
 \hline
 \end{array}$$

LOGARITHMS OF NUMBERS,

FROM

1 to 1000.

0" = 0° 0' 0"		30" = 0° 0' 30"		60" = 0° 1' 0"	
N.	Log.	N.	Log.	N.	Log.
0	— ∞	30	1.47712	60	1.77815
1	0.00000	31	1.49136	61	1.78533
2	0.30103	32	1.50515	62	1.79239
3	0.47712	33	1.51851	63	1.79934
4	0.60206	34	1.53148	64	1.80618
5	0.69897	35	1.54407	65	1.81291
6	0.77815	36	1.55630	66	1.81954
7	0.84510	37	1.56820	67	1.82607
8	0.90309	38	1.57978	68	1.83251
9	0.95424	39	1.59106	69	1.83885
10	1.00000	40	1.60206	70	1.84510
11	1.04139	41	1.61278	71	1.85126
12	1.07918	42	1.62325	72	1.85733
13	1.11394	43	1.63347	73	1.86332
14	1.14613	44	1.64345	74	1.86923
15	1.17609	45	1.65321	75	1.87506
16	1.20412	46	1.66276	76	1.88081
17	1.23045	47	1.67210	77	1.88649
18	1.25527	48	1.68124	78	1.89209
19	1.27875	49	1.69020	79	1.89763
20	1.30103	50	1.69897	80	1.90309
21	1.32222	51	1.70757	81	1.90849
22	1.34242	52	1.71600	82	1.91381
23	1.36173	53	1.72428	83	1.91908
24	1.38021	54	1.73239	84	1.92428
25	1.39794	55	1.74036	85	1.92942
26	1.41497	56	1.74819	86	1.93450
27	1.43136	57	1.75587	87	1.93952
28	1.44716	58	1.76343	88	1.94448
29	1.46240	59	1.77085	89	1.94939
30	1.47712	60	1.77815	90	1.95424

90" = 0° 1' 30"		120" = 0° 2' 0"		150" = 0° 2' 30"	
N.	Log.	N.	Log.	N.	Log.
90	1'95424	120	2'07918	150	2'17609
91	1'95904	121	2'08279	151	2'17898
92	1'96379	122	2'08636	152	2'18184
93	1'96848	123	2'08991	153	2'18469
94	1'97313	124	2'09342	154	2'18752
95	1'97772	125	2'09691	155	2'19033
96	1'98227	126	2'10037	156	2'19312
97	1'98677	127	2'10380	157	2'19590
98	1'99123	128	2'10721	158	2'19866
99	1'99564	129	2'11059	159	2'20140
100	2'00000	130	2'11394	160	2'20412
101	2'00432	131	2'11727	161	2'20683
102	2'00860	132	2'12057	162	2'20952
103	2'01284	133	2'12385	163	2'21219
104	2'01703	134	2'12710	164	2'21484
105	2'02119	135	2'13033	165	2'21748
106	2'02531	136	2'13354	166	2'22011
107	2'02938	137	2'13672	167	2'22272
108	2'03342	138	2'13988	168	2'22531
109	2'03743	139	2'14301	169	2'22789
110	2'04139	140	2'14613	170	2'23045
111	2'04532	141	2'14922	171	2'23300
112	2'04922	142	2'15229	172	2'23553
113	2'05308	143	2'15534	173	2'23805
114	2'05690	144	2'15836	174	2'24055
115	2'06070	145	2'16137	175	2'24304
116	2'06446	146	2'16435	176	2'24551
117	2'06819	147	2'16732	177	2'24797
118	2'07188	148	2'17026	178	2'25042
119	2'07555	149	2'17319	179	2'25285
120	2'07918	150	2'17609	180	2'25527

180" = 0° 3' 0"		210" = 0° 3' 30"		240" = 0° 4' 0"	
N.	Log.	N.	Log.	N.	Log.
180	2'25527	210	2'32222	240	2'38021
181	2'25768	211	2'32428	241	2'38202
182	2'26007	212	2'32634	242	2'38382
183	2'26245	213	2'32838	243	2'38561
184	2'26482	214	2'33041	244	2'38739
185	2'26717	215	2'33244	245	2'38917
186	2'26951	216	2'33445	246	2'39094
187	2'27184	217	2'33646	247	2'39270
188	2'27416	218	2'33846	248	2'39445
189	2'27646	219	2'34044	249	2'39620
190	2'27875	220	2'34242	250	2'39794
191	2'28103	221	2'34439	251	2'39967
192	2'28330	222	2'34635	252	2'40140
193	2'28556	223	2'34830	253	2'40312
194	2'28780	224	2'35025	254	2'40483
195	2'29003	225	2'35218	255	2'40654
196	2'29226	226	2'35411	256	2'40824
197	2'29447	227	2'35603	257	2'40993
198	2'29667	228	2'35793	258	2'41162
199	2'29885	229	2'35984	259	2'41330
200	2'30103	230	2'36173	260	2'41497
201	2'30320	231	2'36361	261	2'41664
202	2'30535	232	2'36549	262	2'41830
203	2'30750	233	2'36736	263	2'41996
204	2'30963	234	2'36922	264	2'42160
205	2'31175	235	2'37107	265	2'42325
206	2'31387	236	2'37291	266	2'42488
207	2'31597	237	2'37475	267	2'42651
208	2'31806	238	2'37658	268	2'42813
209	2'32015	239	2'37840	269	2'42975
210	2'32222	240	2'38021	270	2'43136

270" = 0° 4' 30"		300" = 0° 5' 0"		330" = 0° 5' 30"	
N.	Log.	N.	Log.	N.	Log.
270	2'43136	300	2'47712	330	2'51851
271	2'43297	301	2'47857	331	2'51983
272	2'43457	302	2'48001	332	2'52114
273	2'43616	303	2'48144	333	2'52244
274	2'43775	304	2'48287	334	2'52375
275	2'43933	305	2'48430	335	2'52504
276	2'44091	306	2'48572	336	2'52634
277	2'44248	307	2'48714	337	2'52763
278	2'44404	308	2'48855	338	2'52892
279	2'44560	309	2'48996	339	2'53020
280	2'44716	310	2'49136	340	2'53148
281	2'44871	311	2'49276	341	2'53275
282	2'45025	312	2'49415	342	2'53403
283	2'45179	313	2'49554	343	2'53529
284	2'45332	314	2'49693	344	2'53656
285	2'45484	315	2'49831	345	2'53782
286	2'45637	316	2'49969	346	2'53908
287	2'45788	317	2'50106	347	2'54033
288	2'45939	318	2'50243	348	2'54158
289	2'46090	319	2'50379	349	2'54283
290	2'46240	320	2'50515	350	2'54407
291	2'46389	321	2'50651	351	2'54531
292	2'46538	322	2'50786	352	2'54654
293	2'46687	323	2'50920	353	2'54777
294	2'46835	324	2'51055	354	2'54900
295	2'46982	325	2'51188	355	2'55023
296	2'47129	326	2'51322	356	2'55145
297	2'47276	327	2'51455	357	2'55267
298	2'47422	328	2'51587	358	2'55388
299	2'47567	329	2'51720	359	2'55509
300	2'47712	330	2'51851	360	2'55630

360° = 0° 6' 0"		390° = 0° 6' 30"		420° = 0° 7' 0"	
N.	Log.	N.	Log.	N.	Log.
360	2.55630	390	2.59106	420	2.62325
361	2.55751	391	2.59218	421	2.62428
362	2.55871	392	2.59329	422	2.62531
363	2.55991	393	2.59439	423	2.62634
364	2.56110	394	2.59550	424	2.62737
365	2.56229	395	2.59660	425	2.62839
366	2.56348	396	2.59770	426	2.62941
367	2.56467	397	2.59879	427	2.63043
368	2.56585	398	2.59988	428	2.63144
369	2.56703	399	2.60097	429	2.63246
370	2.56820	400	2.60206	430	2.63347
371	2.56937	401	2.60314	431	2.63448
372	2.57054	402	2.60423	432	2.63548
373	2.57171	403	2.60531	433	2.63649
374	2.57287	404	2.60638	434	2.63749
375	2.57403	405	2.60746	435	2.63849
376	2.57519	406	2.60853	436	2.63949
377	2.57634	407	2.60959	437	2.64048
378	2.57749	408	2.61066	438	2.64147
379	2.57864	409	2.61172	439	2.64246
380	2.57978	410	2.61278	440	2.64345
381	2.58092	411	2.61384	441	2.64444
382	2.58206	412	2.61490	442	2.64542
383	2.58320	413	2.61595	443	2.64640
384	2.58433	414	2.61700	444	2.64738
385	2.58546	415	2.61805	445	2.64836
386	2.58659	416	2.61909	446	2.64933
387	2.58771	417	2.62014	447	2.65031
388	2.58883	418	2.62118	448	2.65128
389	2.58995	419	2.62221	449	2.65225
390	2.59106	420	2.62325	450	2.65321

450" = 0° 7' 30"		480" = 0° 8' 0"		510" = 0° 8' 30"	
N.	Log.	N.	Log.	N.	Log.
450	2.65321	480	2.68124	510	2.70757
451	2.65418	481	2.68215	511	2.70842
452	2.65514	482	2.68305	512	2.70927
453	2.65610	483	2.68395	513	2.71012
454	2.65706	484	2.68485	514	2.71096
455	2.65801	485	2.68574	515	2.71181
456	2.65896	486	2.68664	516	2.71265
457	2.65992	487	2.68753	517	2.71349
458	2.66087	488	2.68842	518	2.71433
459	2.66181	489	2.68931	519	2.71517
460	2.66276	490	2.69020	520	2.71600
461	2.66370	491	2.69108	521	2.71684
462	2.66464	492	2.69197	522	2.71767
463	2.66558	493	2.69285	523	2.71850
464	2.66652	494	2.69373	524	2.71933
465	2.66745	495	2.69461	525	2.72016
466	2.66839	496	2.69548	526	2.72099
467	2.66932	497	2.69636	527	2.72181
468	2.67025	498	2.69723	528	2.72263
469	2.67117	499	2.69810	529	2.72346
470	2.67210	500	2.69897	530	2.72428
471	2.67302	501	2.69984	531	2.72509
472	2.67394	502	2.70070	532	2.72591
473	2.67486	503	2.70157	533	2.72673
474	2.67578	504	2.70243	534	2.72754
475	2.67669	505	2.70329	535	2.72835
476	2.67761	506	2.70415	536	2.72916
477	2.67852	507	2.70501	537	2.72997
478	2.67943	508	2.70586	538	2.73078
479	2.68034	509	2.70672	539	2.73159
480	2.68124	510	2.70757	540	2.73239

1350

1350" = 0° 22' 30"		1380" = 0° 23' 0"		1410" = 0° 23' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
1350	13 033	1380	13 988	1410	14 922	33
51	066	81	14 019	11	953	1 3'3
52	098	82	051	12	983	2 6'6
53	130	83	082	13	15 014	3 9'9
54	162	84	114	14	045	4 13'2
55	13 194	85	14 145	15	15 076	5 16'5
56	226	86	176	16	106	6 19'8
57	258	87	208	17	137	7 23'1
58	290	88	239	18	168	8 26'4
59	322	89	270	19	198	9 30'7
1360	13 354	1390	14 301	1420	15 229	32
61	386	91	333	21	259	1 3'2
62	418	92	364	22	290	2 6'4
63	450	93	395	23	320	3 9'6
64	481	94	426	24	351	4 12'8
65	13 513	95	14 457	25	15 381	5 16'0
66	545	96	489	26	412	6 19'2
67	577	97	520	27	442	7 22'4
68	609	98	551	28	473	8 25'6
69	640	99	582	29	503	9 28'8
1370	13 672	1400	14 613	1430	15 534	31
71	704	01	644	31	564	1 3'1
72	735	02	675	32	594	2 6'2
73	767	03	706	33	625	3 9'3
74	799	04	737	34	655	4 12'4
75	13 830	05	14 768	35	15 685	5 15'5
76	862	06	799	36	715	6 18'6
77	893	07	829	37	746	7 21'7
78	925	08	860	38	776	8 24'8
79	956	09	891	39	806	9 27'9
1380	13 988	1410	14 922	1440	15 836	

1440" = 0° 24' 0"		1470" = 0° 24' 30"		1500" = 0° 25' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
1440	15 836	1470	16 732	1500	17 609	30
41	866	71	761	01	638	1 3'0
42	897	72	791	02	667	2 6'0
43	927	73	820	03	696	3 9'0
44	957	74	850	04	725	4 12'0
45	15 987	75	16 879	05	17 754	5 15'0
46	16 017	76	909	06	782	6 18'0
47	047	77	938	07	811	7 21'0
48	077	78	967	08	840	8 24'0
49	107	79	997	09	869	9 27'0
1450	16 137	1480	17 026	1510	17 898	29
51	167	81	056	11	926	1 2'9
52	197	82	085	12	955	2 5'8
53	227	83	114	13	984	3 8'7
54	256	84	143	14	18 013	4 11'6
55	16 286	85	17 173	15	18 041	5 14'5
56	316	86	202	16	070	6 17'4
57	346	87	231	17	099	7 20'3
58	376	88	260	18	127	8 23'2
59	406	89	289	19	156	9 26'1
1460	16 435	1490	17 319	1520	18 184	28
61	465	91	348	21	213	1 2'8
62	495	92	377	22	241	2 5'6
63	524	93	406	23	270	3 8'4
64	554	94	435	24	298	4 11'2
65	16 584	95	17 464	25	18 327	5 14'0
66	613	96	493	26	355	6 16'8
67	643	97	522	27	384	7 19'6
68	673	98	551	28	412	8 22'4
69	702	99	580	29	441	9 25'2
1470	16 732	1500	17 609	1530	18 469	

1530

1530" = 0° 25' 30"		1560" = 0° 26' 0"		1590" = 0° 26' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
1530	18 469	1560	19 312	1590	20 140	29	
31	498	61	340	91	167	1	2·9
32	526	62	368	92	194	2	5·8
33	554	63	396	93	222	3	8·7
34	583	64	424	94	249	4	11·6
35	18 611	65	19 451	95	20 276	5	14·5
36	639	66	479	96	303	6	17·4
37	667	67	507	97	330	7	20·3
38	696	68	535	98	358	8	23·2
39	724	69	562	99	385	9	26·1
1540	18 752	1570	19 590	1600	20 412	28	
41	780	71	618	01	439	1	2·8
42	808	72	645	02	466	2	5·6
43	837	73	673	03	493	3	8·4
44	865	74	700	04	520	4	11·2
45	18 893	75	19 728	05	20 548	5	14·0
46	921	76	756	06	575	6	16·8
47	949	77	783	07	602	7	19·6
48	977	78	811	08	629	8	22·4
49	19 005	79	838	09	656	9	25·2
1550	19 033	1580	19 866	1610	20 683	27	
51	061	81	893	11	710	1	2·7
52	089	82	921	12	737	2	5·4
53	117	83	948	13	763	3	8·1
54	145	84	976	14	790	4	10·8
55	19 173	85	20 003	15	20 817	5	13·5
56	201	86	030	16	844	6	16·2
57	229	87	058	17	871	7	18·9
58	257	88	085	18	898	8	21·6
59	285	89	112	19	925	9	24·3
1560	19 312	1590	20 140	1620	20 952		

1620

1620"=0° 27' 0"		1650"=0° 27' 30"		1680"=0° 28' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
1620	20 952	1650	21 748	1680	22 531	27
21	978	51	775	81	557	1 2'7
22	21 005	52	801	82	583	2 5'4
23	032	53	827	83	608	3 8'1
24	059	54	854	84	634	4 10'8
25	21 085	55	21 880	85	22 660	5 13'5
26	112	56	906	86	686	6 16'2
27	139	57	932	87	712	7 18'9
28	165	58	958	88	737	8 21'6
29	192	59	985	89	763	9 24'3
1630	21 219	1660	22 011	1690	22 789	26
31	245	61	037	91	814	1 2'6
32	272	62	063	92	840	2 5'2
33	299	63	089	93	866	3 7'8
34	325	64	115	94	891	4 10'4
35	21 352	65	22 141	95	22 917	5 13'0
36	378	66	167	96	943	6 15'6
37	405	67	194	97	968	7 18'2
38	431	68	220	98	994	8 20'8
39	458	69	246	99	23 019	9 23'4
1640	21 484	1670	22 272	1700	23 045	25
41	511	71	298	01	070	1 2'5
42	537	72	324	02	096	2 5'0
43	564	73	350	03	121	3 7'5
44	590	74	376	04	147	4 10'0
45	21 617	75	22 401	05	23 172	5 12'5
46	643	76	427	06	198	6 15'0
47	669	77	453	07	223	7 17'5
48	696	78	479	08	249	8 20'0
49	722	79	505	09	274	9 22'5
1650	21 748	1680	22 531	1710	23 300	

1710

1710" = 0° 28' 30"		1740" = 0° 29' 0"		1770" = 0° 29' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
1710	23 300	1740	24 055	1770	24 797	26	
11	325	41	080	71	822	1	2'6
12	350	42	105	72	846	2	5'2
13	376	43	130	73	871	3	7'8
14	401	44	155	74	895	4	10'4
15	23 426	45	24 180	75	24 920	5	13'0
16	452	46	204	76	944	6	15'6
17	477	47	229	77	969	7	18'2
18	502	48	254	78	993	8	20'8
19	528	49	279	79	25 018	9	23'4
1720	23 553	1750	24 304	1780	25 042		
21	578	51	329	81	066		
22	603	52	353	82	091		
23	629	53	378	83	115		
24	654	54	403	84	139		
25	23 679	55	24 428	85	25 164		
26	704	56	452	86	188		
27	729	57	477	87	212		
28	754	58	502	88	237		
29	779	59	527	89	261		
1730	23 805	1760	24 551	1790	25 285	25	
31	830	61	576	91	310	1	2'5
32	855	62	601	92	334	2	5'0
33	880	63	625	93	358	3	7'5
34	905	64	650	94	382	4	10'0
35	23 930	65	24 674	95	25 406	5	12'5
36	955	66	699	96	431	6	15'0
37	980	67	724	97	455	7	17'5
38	24 005	68	748	98	479	8	20'0
39	030	69	773	99	503	9	22'5
1740	24 055	1770	24 797	1800	25 527		

1800

1800" = 0° 30' 0"		1830" = 0° 30' 30"		1860" = 0° 31' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
1800	25 527	1830	26 245	1860	26 951	24	
01	551	31	269	61	975	1	2'4
02	575	32	293	62	998	2	4'8
03	600	33	316	63	27 021	3	7'2
04	624	34	340	64	045	4	9'6
05	25 648	35	26 364	65	27 068	5	12'0
06	672	36	387	66	091	6	14'4
07	696	37	411	67	114	7	16'8
08	720	38	435	68	138	8	19'2
09	744	39	458	69	161	9	21'6
1810	25 768	1840	26 482	1870	27 184		
11	792	41	505	71	207		
12	816	42	529	72	231		
13	840	43	553	73	254		
14	864	44	576	74	277		
15	25 888	45	26 600	75	27 300		
16	912	46	623	76	323		
17	935	47	647	77	346		
18	959	48	670	78	370		
19	983	49	694	79	393		
1820	26 007	1850	26 717	1880	27 416	23	
21	031	51	741	81	439		
22	055	52	764	82	462	1	2'3
23	079	53	788	83	485	2	4'6
24	102	54	811	84	508	3	6'9
25	26 126	55	26 834	85	27 531	4	9'2
26	150	56	858	86	554	5	11'5
27	174	57	881	87	577	6	13'8
28	198	58	905	88	600	7	16'1
29	221	59	928	89	623	8	18'4
						9	20'7
1830	26 245	1860	26 951	1890	27 646		

1890

1890" = 0° 31' 30"		1920" = 0° 32' 0"		1950" = 0° 32' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
1890	27 646	1920	28 330	1950	29 003	23
91	669	21	353	51	026	1 2'3
92	692	22	375	52	048	2 4'6
93	715	23	398	53	070	3 6'9
94	738	24	421	54	092	4 9'2
95	27 761	25	28 443	55	29 115	5 11'5
96	784	26	466	56	137	6 13'8
97	807	27	488	57	159	7 16'1
98	830	28	511	58	181	8 18'4
99	852	29	533	59	203	9 20'7
1900	27 875	1930	28 556	1960	29 226	
01	898	31	578	61	248	
02	921	32	601	62	270	
03	944	33	623	63	292	
04	967	34	646	64	314	
05	27 989	35	28 668	65	29 336	
06	28 012	36	691	66	358	
07	035	37	713	67	380	
08	058	38	735	68	403	
09	081	39	758	69	425	
1910	28 103	1940	28 780	1970	29 447	22
11	126	41	803	71	469	1 2'2
12	149	42	825	72	491	2 4'4
13	171	43	847	73	513	3 6'6
14	194	44	870	74	535	4 8'8
15	28 217	45	28 892	75	29 557	5 11'0
16	240	46	914	76	579	6 13'2
17	262	47	937	77	601	7 15'4
18	285	48	959	78	623	8 17'6
19	307	49	981	79	645	9 19'8
1920	28 330	1950	29 003	1980	29 667	

1980

1980" = 0° 33' 0"		2010" = 0° 33' 30"		2040" = 0° 34' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
1980	29 667	2010	30 320	2040	30 963	22
81	688	11	341	41	984	1 2'2
82	710	12	363	42	31 006	2 4'4
83	732	13	384	43	027	3 6'6
84	754	14	406	44	048	4 8'8
85	29 776	15	30 428	45	31 069	5 11 0
86	798	16	449	46	091	6 13'2
87	820	17	471	47	112	7 15'4
88	842	18	492	48	133	8 17'6
89	863	19	514	49	154	9 19'8
1990	29 885	2020	30 535	2050	31 175	
91	907	21	557	51	197	
92	929	22	578	52	218	
93	951	23	600	53	239	
94	973	24	621	54	260	
95	29 994	25	30 643	55	31 281	
96	30 016	26	664	56	302	
97	038	27	685	57	323	
98	060	28	707	58	345	
99	081	29	728	59	366	
2000	30 103	2030	30 750	2060	31 387	21
01	125	31	771	61	408	1 2'1
02	146	32	792	62	429	2 4'2
03	168	33	814	63	450	3 6'3
04	190	34	835	64	471	4 8'4
05	30 211	35	30 856	65	31 492	5 10'5
06	233	36	878	66	513	6 12'6
07	255	37	899	67	534	7 14'7
08	276	38	920	68	555	8 16'8
09	298	39	942	69	576	9 18'9
2010	30 320	2040	30 963	2070	31 597	

2070" = 0° 34' 30"		2100" = 0° 35' 0"		2130" = 0° 35' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
2070	31 597	2100	32 222	2130	32 838	21
71	618	01	243	31	858	1 2' 1
72	639	02	263	32	879	2 4' 2
73	660	03	284	33	899	3 6' 3
74	681	04	305	34	919	4 8' 4
75	31 702	05	32 325	35	32 940	5 10' 5
76	723	06	346	36	960	6 12' 6
77	744	07	366	37	980	7 14' 7
78	765	08	387	38	33 001	8 16' 8
79	785	09	408	39	021	9 18' 9
2080	31 806	2110	32 428	2140	33 041	
81	827	11	449	41	062	
82	848	12	469	42	082	
83	869	13	490	43	102	
84	890	14	510	44	122	
85	31 911	15	32 531	45	33 143	
86	931	16	552	46	163	
87	952	17	572	47	183	
88	973	18	593	48	203	
89	994	19	613	49	224	
2090	32 015	2120	32 634	2150	33 244	20
91	035	21	654	51	264	1 2' 0
92	056	22	675	52	284	2 4' 0
93	077	23	695	53	304	3 6' 0
94	098	24	715	54	325	4 8' 0
95	32 118	25	32 736	55	33 345	5 10' 0
96	139	26	756	56	365	6 12' 0
97	160	27	777	57	385	7 14' 0
98	181	28	797	58	405	8 16' 0
99	201	29	818	59	425	9 18' 0
2100	32 222	2130	32 838	2160	33 445	

2160" = 0° 36' 0"		2190" = 0° 36' 30"		2220" = 0° 37' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
2160	33 445	2190	34 044	2220	34 635	20	
61	465	91	064	21	655	1	2' 0
62	486	92	084	22	674	2	4' 0
63	506	93	104	23	694	3	6' 0
64	526	94	124	24	713	4	8' 0
65	33 546	95	34 143	25	34 733	5	10' 0
66	566	96	163	26	753	6	12' 0
67	586	97	183	27	772	7	14' 0
68	606	98	203	28	792	8	16' 0
69	626	99	223	29	811	9	18' 0
2170	33 646	2200	34 242	2230	34 830		
71	666	01	262	31	850		
72	686	02	282	32	869		
73	706	03	301	33	889		
74	726	04	321	34	908		
75	33 746	05	34 341	35	34 928		
76	766	06	361	36	947		
77	786	07	380	37	967		
78	806	08	400	38	986		
79	826	09	420	39	35 005		
2180	33 846	2210	34 439	2240	35 025	19	
81	866	11	459	41	044		
82	885	12	479	42	064	1	1' 9
83	905	13	498	43	083	2	3' 8
84	925	14	518	44	102	3	5' 7
85	33 945	15	34 537	45	35 122	4	7' 6
86	965	16	557	46	141	5	9' 5
87	985	17	577	47	160	6	11' 4
88	34 005	18	596	48	180	7	13' 3
89	025	19	616	49	199	8	15' 2
						9	17' 1
2190	34 044	2220	34 635	2250	35 218		

2250

2250" = 0° 37' 30"		2280" = 0° 38' 0"		2310" = 0° 38' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
2250	35 218	2280	35 793	2310	36 361	20
51	238	81	813	11	380	1 2'0
52	257	82	832	12	399	2 4'0
53	276	83	851	13	418	3 6'0
54	295	84	870	14	436	4 8'0
55	35 315	85	35 889	15	36 455	5 10'0
56	334	86	908	16	474	6 12'0
57	353	87	927	17	493	7 14'0
58	372	88	946	18	511	8 16'0
59	392	89	965	19	530	9 18'0
2260	35 411	2290	35 984	2320	36 549	
61	430	91	36 003	21	568	
62	449	92	021	22	586	
63	468	93	040	23	605	
64	488	94	059	24	624	
65	35 507	95	36 078	25	36 642	
66	526	96	097	26	661	
67	545	97	116	27	680	
68	564	98	135	28	698	
69	583	99	154	29	717	
2270	35 603	2300	36 173	2330	36 736	19
71	622	01	192	31	754	1 1'9
72	641	02	211	32	773	2 3'8
73	660	03	229	33	791	3 5'7
74	679	04	248	34	810	4 7'6
75	35 698	05	36 267	35	36 829	5 9'5
76	717	06	286	36	847	6 11'4
77	736	07	305	37	866	7 13'3
78	755	08	324	38	884	8 15'2
79	774	09	342	39	903	9 17'1
2280	35 793	2310	36 361	2340	36 922	

2340

2340"=0° 39' 0"		2370"=0° 39' 30"		2400"=0° 40' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
2340	36 922	2370	37 475	2400	38 021	18
41	940	71	493	01	039	1 1·8
42	959	72	511	02	057	2 3·6
43	977	73	530	03	075	3 5·4
44	996	74	548	04	093	4 7·2
45	37 014	75	37 566	05	38 112	5 9·0
46	033	76	585	06	130	6 10·8
47	051	77	603	07	148	7 12·6
48	070	78	621	08	166	8 14·4
49	088	79	639	09	184	9 16·2
2350	37 107	2380	37 658	2410	38 202	
51	125	81	676	11	220	
52	144	82	694	12	238	
53	162	83	712	13	256	
54	181	84	731	14	274	
55	37 199	85	37 749	15	38 292	
56	218	86	767	16	310	
57	236	87	785	17	328	
58	254	88	803	18	346	
59	273	89	822	19	364	
2360	37 291	2390	37 840	2420	38 382	17
61	310	91	858	21	399	1 1·7
62	328	92	876	22	417	2 3·4
63	346	93	894	23	435	3 5·1
64	365	94	912	24	453	4 6·8
65	37 383	95	37 931	25	38 471	5 8·5
66	401	96	949	26	489	6 10·2
67	420	97	967	27	507	7 11·9
68	438	98	985	28	525	8 13·6
69	457	99	38 003	29	543	9 15·3
2370	37 475	2400	38 021	2430	38 561	

2430

2430" = 0° 40' 30"		2460" = 0° 41' 0"		2490" = 0° 41' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
2430	38 561	2460	39 094	2490	39 620	18
31	578	61	111	91	637	1 1'8
32	596	62	129	92	655	2 3'6
33	614	63	146	93	672	3 5'4
34	632	64	164	94	690	4 7'2
35	38 650	65	39 182	95	39 707	5 9'0
36	668	66	199	96	724	6 10'8
37	686	67	217	97	742	7 12'6
38	703	68	235	98	759	8 14'4
39	721	69	252	99	777	9 16'2
2440	38 739	2470	39 270	2500	39 794	
41	757	71	287	01	811	
42	775	72	305	02	829	
43	792	73	322	03	846	
44	810	74	340	04	863	
45	38 828	75	39 358	05	39 881	
46	846	76	375	06	898	
47	863	77	393	07	915	
48	881	78	410	08	933	
49	899	79	428	09	950	
2450	38 917	2480	39 445	2510	39 967	17
51	934	81	463	11	985	1 1'7
52	952	82	480	12	40 002	2 3'4
53	970	83	498	13	019	3 5'1
54	987	84	515	14	037	4 6'8
55	39 005	85	39 533	15	40 054	5 8'5
56	023	86	550	16	071	6 10'2
57	041	87	568	17	088	7 11'9
58	058	88	585	18	106	8 13'6
59	076	89	602	19	123	9 15'3
2460	39 094	2490	39 620	2520	40 140	

2520" = 0° 42' 0"		2550" = 0° 42' 30"		2580" = 0° 43' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
2520	40 140	2550	40 654	2580	41 162	17	
21	157	51	671	81	179	1	1.7
22	175	52	688	82	196	2	3.4
23	192	53	705	83	212	3	5.1
24	209	54	722	84	229	4	6.8
25	40 226	55	40 739	85	41 246	5	8.5
26	243	56	756	86	263	6	10.2
27	261	57	773	87	280	7	11.9
28	278	58	790	88	296	8	13.6
29	295	59	807	89	313	9	15.3
2530	40 312	2560	40 824	2590	41 330		
31	329	61	841	91	347		
32	346	62	858	92	363		
33	364	63	875	93	380		
34	381	64	892	94	397		
35	40 398	65	40 909	95	41 414		
36	415	66	926	96	430		
37	432	67	943	97	447		
38	449	68	960	98	464		
39	466	69	976	99	481		
2540	40 483	2570	40 993	2600	41 497	16	
41	500	71	41 010	01	514	1	1.6
42	518	72	027	02	531	2	3.2
43	535	73	044	03	547	3	4.8
44	552	74	061	04	564	4	6.4
45	40 569	75	41 078	05	41 581	5	8.0
46	586	76	095	06	597	6	9.6
47	603	77	111	07	614	7	11.2
48	620	78	128	08	631	8	12.8
49	637	79	145	09	647	9	14.4
2550	40 654	2580	41 162	2610	41 664		

2610

2610" = 0° 43' 30"		2640" = 0° 44' 0"		2670" = 0° 44' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
2610	41 664	2640	42 160	2670	42 651	17
11	681	41	177	71	667	1 1'7
12	697	42	193	72	684	2 3'4
13	714	43	210	73	700	3 5'1
14	731	44	226	74	716	4 6'8
15	41 747	45	42 243	75	42 732	5 8'5
16	764	46	259	76	749	6 10'2
17	780	47	275	77	765	7 11'9
18	797	48	292	78	781	8 13'6
19	814	49	308	79	797	9 15'3
2620	41 830	2650	42 325	2680	42 813	
21	847	51	341	81	830	
22	863	52	357	82	846	
23	880	53	374	83	862	
24	896	54	390	84	878	
25	41 913	55	42 406	85	42 894	
26	929	56	423	86	911	
27	946	57	439	87	927	
28	963	58	455	88	943	
29	979	59	472	89	959	
2630	41 996	2660	42 488	2690	42 975	16
31	42 012	61	504	91	991	1 1'6
32	029	62	521	92	43 008	2 3'2
33	045	63	537	93	024	3 4'8
34	062	64	553	94	040	4 6'4
35	42 078	65	42 570	95	43 056	5 8'0
36	095	66	586	96	072	6 9'6
37	111	67	602	97	088	7 11'2
38	127	68	619	98	104	8 12'8
39	144	69	635	99	120	9 14'4
2640	42 160	2670	42 651	2700	43 136	

2700

2700"=0° 45' 0"		2730"=0° 45' 30"		2760"=0° 46' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
2700	43 136	2730	43 616	2760	44 091	16
01	152	31	632	61	107	1 1'6
02	169	32	648	62	122	2 3'2
03	185	33	664	63	138	3 4'8
04	201	34	680	64	154	4 6'4
05	43 217	35	43 696	65	44 170	5 8'0
06	233	36	712	66	185	6 9'6
07	249	37	727	67	201	7 11'2
08	265	38	743	68	217	8 12'8
09	281	39	759	69	232	9 14'4
2710	43 297	2740	43 775	2770	44 248	
11	313	41	791	71	264	
12	329	42	807	72	279	
13	345	43	823	73	295	
14	361	44	838	74	311	
15	43 377	45	43 854	75	44 326	
16	393	46	870	76	342	
17	409	47	886	77	358	
18	425	48	902	78	373	
19	441	49	917	79	389	
2720	43 457	2750	43 933	2780	44 404	15
21	473	51	949	81	420	1 1'5
22	489	52	965	82	436	2 3'0
23	505	53	981	83	451	3 4'5
24	521	54	996	84	467	4 6'0
25	43 537	55	44 012	85	44 483	5 7'5
26	553	56	028	86	498	6 9'0
27	569	57	044	87	514	7 10'5
28	584	58	059	88	529	8 12'0
29	600	59	075	89	545	9 13'5
2730	43 616	2760	44 091	2790	44 560	

2790" = 0° 46' 30"		2820" = 0° 47' 0"		2850" = 0° 47' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
2790	44 560	2820	45 025	2850	45 484	16
91	576	21	040	51	500	1 1'6
92	592	22	056	52	515	2 3'2
93	607	23	071	53	530	3 4'8
94	623	24	086	54	545	4 6'4
95	44 638	25	45 102	55	45 561	5 8'0
96	654	26	117	56	576	6 9'6
97	669	27	133	57	591	7 11'2
98	685	28	148	58	606	8 12'8
99	700	29	163	59	621	9 14'4
2800	44 716	2830	45 179	2860	45 637	
01	731	31	194	61	652	
02	747	32	209	62	667	
03	762	33	225	63	682	
04	778	34	240	64	697	
05	44 793	35	45 255	65	45 712	
06	809	36	271	66	728	
07	824	37	286	67	743	
08	840	38	301	68	758	
09	855	39	317	69	773	
2810	44 871	2840	45 332	2870	45 788	15
11	886	41	347	71	803	1 1'5
12	902	42	362	72	818	2 3'0
13	917	43	378	73	834	3 4'5
14	932	44	393	74	849	4 6'0
15	44 948	45	45 408	75	45 864	5 7'5
16	963	46	423	76	879	6 9'0
17	979	47	439	77	894	7 10'5
18	994	48	454	78	909	8 12'0
19	45 010	49	469	79	924	9 13'5
2820	45 025	2850	45 484	2880	45 939	

2880

2880" = 0° 48' 0"		2910" = 0° 48' 30"		2940" = 0° 49' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
2880	45 939	2910	46 389	2940	46 835	15
81	954	11	404	41	850	1 1'5
82	969	12	419	42	864	2 3'0
83	984	13	434	43	879	3 4'5
84	46 000	14	449	44	894	4 6'0
85	46 015	15	46 464	45	46 909	5 7'5
86	030	16	479	46	923	6 9'0
87	045	17	494	47	938	7 10'5
88	060	18	509	48	953	8 12'0
89	075	19	523	49	967	9 13'5
2890	46 090	2920	46 538	2950	46 982	
91	105	21	553	51	997	
92	120	22	568	52	47 012	
93	135	23	583	53	026	
94	150	24	598	54	041	
95	46 165	25	46 613	55	47 056	
96	180	26	627	56	070	
97	195	27	642	57	085	
98	210	28	657	58	100	
99	225	29	672	59	114	
2900	46 240	2930	46 687	2960	47 129	14
01	255	31	702	61	144	1 1'4
02	270	32	716	62	159	2 2'8
03	285	33	731	63	173	3 4'2
04	300	34	746	64	188	4 5'6
05	46 315	35	46 761	65	47 202	5 7'0
06	330	36	776	66	217	6 8'4
07	345	37	790	67	232	7 9'8
08	359	38	805	68	246	8 11'2
09	374	39	820	69	261	9 12'6
2910	46 389	2940	46 835	2970	47 276	

2970

2970" = 0° 49' 30"		3000" = 0° 50' 0"		3030" = 0° 50' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
2970	47 276	3000	47 712	3030	48 144	15
71	290	01	727	31	159	1 1'5
72	305	02	741	32	173	2 3'0
73	319	03	756	33	187	3 4'5
74	334	04	770	34	202	4 6'0
75	47 349	05	47 784	35	48 216	5 7'5
76	363	06	799	36	230	6 9'0
77	378	07	813	37	244	7 10'5
78	392	08	828	38	259	8 12'0
79	407	09	842	39	273	9 13'5
2980	47 422	3010	47 857	3040	48 287	
81	436	11	871	41	302	
82	451	12	885	42	316	
83	465	13	900	43	330	
84	480	14	914	44	344	
85	47 494	15	47 929	45	48 359	
86	509	16	943	46	373	
87	524	17	958	47	387	
88	538	18	972	48	401	
89	553	19	986	49	416	
2990	47 567	3020	48 001	3050	48 430	14
91	582	21	015	51	444	1 1'4
92	596	22	029	52	458	2 2'8
93	611	23	044	53	473	3 4'2
94	625	24	058	54	487	4 5'6
95	47 640	25	48 073	55	48 501	5 7'0
96	654	26	087	56	515	6 8'4
97	669	27	101	57	530	7 9'8
98	683	28	116	58	544	8 11'2
99	698	29	130	59	558	9 12'6
3000	47 712	3030	48 144	3060	48 572	

1980

1980" = 0° 33' 0"		2010" = 0° 33' 30"		2040" = 0° 34' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
1980	29 667	2010	30 320	2040	30 963	22
81	688	11	341	41	984	1 2'2
82	710	12	363	42	31 006	2 4'4
83	732	13	384	43	027	3 6'6
84	754	14	406	44	048	4 8'8
85	29 776	15	30 428	45	31 069	5 11 0
86	798	16	449	46	091	6 13'2
87	820	17	471	47	112	7 15'4
88	842	18	492	48	133	8 17'6
89	863	19	514	49	154	9 19'8
1990	29 885	2020	30 535	2050	31 175	
91	907	21	557	51	197	
92	929	22	578	52	218	
93	951	23	600	53	239	
94	973	24	621	54	260	
95	29 994	25	30 643	55	31 281	
96	30 016	26	664	56	302	
97	038	27	685	57	323	
98	060	28	707	58	345	
99	081	29	728	59	366	
2000	30 103	2030	30 750	2060	31 387	21
01	125	31	771	61	408	1 2'1
02	146	32	792	62	429	2 4'2
03	168	33	814	63	450	3 6'3
04	190	34	835	64	471	4 8'4
05	30 211	35	30 856	65	31 492	5 10'5
06	233	36	878	66	513	6 12'6
07	255	37	899	67	534	7 14'7
08	276	38	920	68	555	8 16'8
09	298	39	942	69	576	9 18'9
2010	30 320	2040	30 963	2070	31 597	

3150

3150"=0° 52' 30"		3180"=0° 53' 0"		3210"=0° 53' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
3150	49 831	3180	50 243	3210	50 651	14
51	845	81	256	11	664	1 1'4
52	859	82	270	12	678	2 2'8
53	872	83	284	13	691	3 4'2
54	886	84	297	14	705	4 5'6
55	49 900	85	50 311	15	50 718	5 7'0
56	914	86	325	16	732	6 8'4
57	927	87	338	17	745	7 9'8
58	941	88	352	18	759	8 11'2
59	955	89	365	19	772	9 12'6
3160	49 969	3190	50 379	3220	50 786	
61	982	91	393	21	799	
62	996	92	406	22	813	
63	50 010	93	420	23	826	
64	024	94	433	24	840	
65	50 037	95	50 447	25	50 853	
66	051	96	461	26	866	
67	065	97	474	27	880	
68	079	98	488	28	893	
69	092	99	501	29	907	
3170	50 106	3200	50 515	3230	50 920	13
71	120	01	529	31	934	1 1'3
72	133	02	542	32	947	2 2'6
73	147	03	556	33	961	3 3'9
74	161	04	569	34	974	4 5'2
75	50 174	05	50 583	35	50 987	5 6'5
76	188	06	596	36	51 001	6 7'8
77	202	07	610	37	014	7 9'1
78	215	08	623	38	028	8 10'4
79	229	09	637	39	041	9 11'7
3180	50 243	3210	50 651	3240	51 055	

2160

2160" = 0° 36' 0"		2190" = 0° 36' 30"		2220" = 0° 37' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
2160	33 445	2190	34 044	2220	34 635	20
61	465	91	064	21	655	1 2' 0
62	486	92	084	22	674	2 4' 0
63	506	93	104	23	694	3 6' 0
64	526	94	124	24	713	4 8' 0
65	33 546	95	34 143	25	34 733	5 10' 0
66	566	96	163	26	753	6 12' 0
67	586	97	183	27	772	7 14' 0
68	606	98	203	28	792	8 16' 0
69	626	99	223	29	811	9 18' 0
2170	33 646	2200	34 242	2230	34 830	
71	666	01	262	31	850	
72	686	02	282	32	869	
73	706	03	301	33	889	
74	726	04	321	34	908	
75	33 746	05	34 341	35	34 928	
76	766	06	361	36	947	
77	786	07	380	37	967	
78	806	08	400	38	986	
79	826	09	420	39	35 005	
2180	33 846	2210	34 439	2240	35 025	19
81	866	11	459	41	044	1 1' 9
82	885	12	479	42	064	2 3' 8
83	905	13	498	43	083	3 5' 7
84	925	14	518	44	102	4 7' 6
85	33 945	15	34 537	45	35 122	5 9' 5
86	965	16	557	46	141	6 11' 4
87	985	17	577	47	160	7 13' 3
88	34 005	18	596	48	180	8 15' 2
89	025	19	616	49	199	9 17' 1
2190	34 044	2220	34 635	2250	35 218	

3330

3330" = 0° 55' 30"		3360" = 0° 56' 0"		3390" = 0° 56' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
3330	52 244	3360	52 634	3390	53 020	14	
31	257	61	647	91	033	1	1' 4
32	270	62	660	92	046	2	2' 8
33	284	63	673	93	058	3	4' 2
34	297	64	686	94	071	4	5' 6
35	52 310	65	52 699	95	53 084	5	7' 0
36	323	66	711	96	097	6	8' 4
37	336	67	724	97	110	7	9' 8
38	349	68	737	98	122	8	11' 2
39	362	69	750	99	135	9	12' 6
3340	52 375	3370	52 763	3400	53 148		
41	388	71	776	01	161		
42	401	72	789	02	173		
43	414	73	802	03	186		
44	427	74	815	04	199		
45	52 440	75	52 827	05	53 212		
46	453	76	840	06	224		
47	466	77	853	07	237		
48	479	78	866	08	250		
49	492	79	879	09	263		
3350	52 504	3380	52 892	3410	53 275	13	
51	517	81	905	11	288	1	1' 3
52	530	82	917	12	301	2	2' 6
53	543	83	930	13	314	3	3' 9
54	556	84	943	14	326	4	5' 2
55	52 569	85	52 956	15	53 339	5	6' 5
56	582	86	969	16	352	6	7' 8
57	595	87	982	17	364	7	9' 1
58	608	88	994	18	377	8	10' 4
59	621	89	53 007	19	390	9	11' 7
3360	52 634	3390	53 020	3420	53 403		

3420

3420"=0° 57' 0"		3450"=0° 57' 30"		3480"=0° 58' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
3420	53 403	3450	53 782	3480	54 158	13
21	415	51	794	81	170	1 1'3
22	428	52	807	82	183	2 2'6
23	441	53	820	83	195	3 3'9
24	453	54	832	84	208	4 5'2
25	53 466	55	53 845	85	54 220	5 6'5
26	479	56	857	86	233	6 7'8
27	491	57	870	87	245	7 9'1
28	504	58	882	88	258	8 10'4
29	517	59	895	89	270	9 11'7
3430	53 529	3460	53 908	3490	54 283	
31	542	61	920	91	295	
32	555	62	933	92	307	
33	567	63	945	93	320	
34	580	64	958	94	332	
35	53 593	65	53 970	95	54 345	
36	605	66	983	96	357	
37	618	67	995	97	370	
38	631	68	54 008	98	382	
39	643	69	020	99	394	
3440	53 656	3470	54 033	3500	54 407	12
41	668	71	045	01	419	1 1'2
42	681	72	058	02	432	2 2'4
43	694	73	070	03	444	3 3'6
44	706	74	083	04	456	4 4'8
45	53 719	75	54 095	05	54 469	5 6'0
46	732	76	108	06	481	6 7'2
47	744	77	120	07	494	7 8'4
48	757	78	133	08	506	8 9'6
49	769	79	145	09	518	9 10'8
3450	53 782	3480	54 158	3510	54 531	

3510

3510"=0° 58' 30"		3540"=0° 59' 0"		3570"=0° 59' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
3510	54 531	3540	54 900	3570	55 267	13	
11	543	41	913	71	279	1	1'3
12	555	42	925	72	291	2	2'6
13	568	43	937	73	303	3	3'9
14	580	44	949	74	315	4	5'2
15	54 593	45	54 962	75	55 328	5	6'5
16	605	46	974	76	340	6	7'8
17	617	47	986	77	352	7	9'1
18	630	48	998	78	364	8	10'4
19	642	49	55 011	79	376	9	11'7
3520	54 654	3550	55 023	3580	55 388		
21	667	51	035	81	400		
22	679	52	047	82	413		
23	691	53	060	83	425		
24	704	54	072	84	437		
25	54 716	55	55 084	85	55 449		
26	728	56	096	86	461		
27	741	57	108	87	473		
28	753	58	121	88	485		
29	765	59	133	89	497		
3530	54 777	3560	55 145	3590	55 509	12	
31	790	61	157	91	522	1	1'2
32	802	62	169	92	534	2	2'4
33	814	63	182	93	546	3	3'6
34	827	64	194	94	558	4	4'8
35	54 839	65	55 206	95	55 570	5	6'0
36	851	66	218	96	582	6	7'2
37	864	67	230	97	594	7	8'4
38	876	68	242	98	606	8	9'6
39	888	69	255	99	618	9	10'8
3540	54 900	3570	55 267	3600	55 630		

3600

3600" = 1° 0' 0"		3630" = 1° 0' 30"		3660" = 1° 1' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
3600	55 630	3630	55 991	3660	56 348	12
01	642	31	56 003	61	360	1 1' 2
02	654	32	015	62	372	2 2' 4
03	666	33	027	63	384	3 3' 6
04	678	34	038	64	396	4 4' 8
05	55 691	35	56 050	65	56 407	5 6' 0
06	703	36	062	66	419	6 7' 2
07	715	37	074	67	431	7 8' 4
08	727	38	086	68	443	8 9' 6
09	739	39	098	69	455	9 10' 8
3610	55 751	3640	56 110	3670	56 467	
11	763	41	122	71	478	
12	775	42	134	72	490	
13	787	43	146	73	502	
14	799	44	158	74	514	
15	55 811	45	56 170	75	56 526	
16	823	46	182	76	538	
17	835	47	194	77	549	
18	847	48	205	78	561	
19	859	49	217	79	573	
3620	55 871	3650	56 229	3680	56 585	11
21	883	51	241	81	597	1 1' 1
22	895	52	253	82	608	2 2' 2
23	907	53	265	83	620	3 3' 3
24	919	54	277	84	632	4 4' 4
25	55 931	55	56 289	85	56 644	5 5' 5
26	943	56	301	86	656	6 6' 6
27	955	57	312	87	667	7 7' 7
28	967	58	324	88	679	8 8' 8
29	979	59	336	89	691	9 9' 9
3630	55 991	3660	56 348	3690	56 703	

3690

3690" = 1° 1' 30"		3720" = 1° 2' 0"		3750" = 1° 2' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
3690	56 703	3720	57 054	3750	57 403	12	
91	714	21	066	51	415	1	1'2
92	726	22	078	52	426	2	2'4
93	738	23	089	53	438	3	3'6
94	750	24	101	54	449	4	4'8
95	56 761	25	57 113	55	57 461	5	6'0
96	773	26	124	56	473	6	7'2
97	785	27	136	57	484	7	8'4
98	797	28	148	58	496	8	9'6
99	808	29	159	59	507	9	10'8
3700	56 820	3730	57 171	3760	57 519		
01	832	31	183	61	530		
02	844	32	194	62	542		
03	855	33	206	63	553		
04	867	34	217	64	565		
05	56 879	35	57 229	65	57 576		
06	891	36	241	66	588		
07	902	37	252	67	600		
08	914	38	264	68	611		
09	926	39	276	69	623		
3710	56 937	3740	57 287	3770	57 634	11	
11	949	41	299	71	646		
12	961	42	310	72	657	1	1'1
13	972	43	322	73	669	2	2'2
14	984	44	334	74	680	3	3'3
15	56 996	45	57 345	75	57 692	4	4'4
16	57 008	46	357	76	703	5	5'5
17	019	47	368	77	715	6	6'6
18	031	48	380	78	726	7	7'7
19	043	49	392	79	738	8	8'8
3720	57 054	3750	57 403	3780	57 749	9	9'9

3780

3780" = 1° 3' 0"		3810" = 1° 3' 30"		3840" = 1° 4' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
3780	57 749	3810	58 092	3840	58 433	12	
81	761	11	104	41	444	1	1' 2
82	772	12	115	42	456	2	2' 4
83	784	13	127	43	467	3	3' 6
84	795	14	138	44	478	4	4' 8
85	57 807	15	58 149	45	58 490	5	6' 0
86	818	16	161	46	501	6	7' 2
87	830	17	172	47	512	7	8' 4
88	841	18	184	48	524	8	9' 6
89	852	19	195	49	535	9	10' 8
3790	57 864	3820	58 206	3850	58 546		
91	875	21	218	51	557		
92	887	22	229	52	569		
93	898	23	240	53	580		
94	910	24	252	54	591		
95	57 921	25	58 263	55	58 602		
96	933	26	274	56	614		
97	944	27	286	57	625		
98	955	28	297	58	636		
99	967	29	309	59	647		
3800	57 978	3830	58 320	3860	58 659	11	
01	990	31	331	61	670		
02	58 001	32	343	62	681	1	1' 1
03	013	33	354	63	692	2	2' 2
04	024	34	365	64	704	3	3' 3
05	58 035	35	58 377	65	58 715	4	4' 4
06	047	36	388	66	726	5	5' 5
07	058	37	399	67	737	6	6' 6
08	070	38	410	68	749	7	7' 7
09	081	39	422	69	760	8	8' 8
3810	58 092	3840	58 433	3870	58 771	9	9' 9

2970

2970" = 0° 49' 30"		3000" = 0° 50' 0"		3030" = 0° 50' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
2970	47 276	3000	47 712	3030	48 144	15	
71	290	01	727	31	159	1	1'5
72	305	02	741	32	173	2	3'0
73	319	03	756	33	187	3	4'5
74	334	04	770	34	202	4	6'0
75	47 349	05	47 784	35	48 216	5	7'5
76	363	06	799	36	230	6	9'0
77	378	07	813	37	244	7	10'5
78	392	08	828	38	259	8	12'0
79	407	09	842	39	273	9	13'5
2980	47 422	3010	47 857	3040	48 287		
81	436	11	871	41	302		
82	451	12	885	42	316		
83	465	13	900	43	330		
84	480	14	914	44	344		
85	47 494	15	47 929	45	48 359		
86	509	16	943	46	373		
87	524	17	958	47	387		
88	538	18	972	48	401		
89	553	19	986	49	416		
2990	47 567	3020	48 001	3050	48 430	14	
91	582	21	015	51	444	1	1'4
92	596	22	029	52	458	2	2'8
93	611	23	044	53	473	3	4'2
94	625	24	058	54	487	4	5'6
95	47 640	25	48 073	55	48 501	5	7'0
96	654	26	087	56	515	6	8'4
97	669	27	101	57	530	7	9'8
98	683	28	116	58	544	8	11'2
99	698	29	130	59	558	9	12'6
3000	47 712	3030	48 144	3060	48 572		

3060

3060" = 0° 51' 0"		3090" = 0° 51' 30"		3120" = 0° 52' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
3060	48 572	3090	48 996	3120	49 415	14
61	586	91	49 010	21	429	1 1'4
62	601	92	024	22	443	2 2'8
63	615	93	038	23	457	3 4'2
64	629	94	052	24	471	4 5'6
65	48 643	95	49 066	25	49 485	5 7'0
66	657	96	080	26	499	6 8'4
67	671	97	094	27	513	7 9'8
68	686	98	108	28	527	8 11'2
69	700	99	122	29	541	9 12'6
3070	48 714	3100	49 136	3130	49 554	
71	728	01	150	31	568	
72	742	02	164	32	582	
73	756	03	178	33	596	
74	770	04	192	34	610	
75	48 785	05	49 206	35	49 624	
76	799	06	220	36	638	
77	813	07	234	37	651	
78	827	08	248	38	665	
79	841	09	262	39	679	
3080	48 855	3110	49 276	3140	49 693	13
81	869	11	290	41	707	1 1'3
82	883	12	304	42	721	2 2'6
83	897	13	318	43	734	3 3'9
84	911	14	332	44	748	4 5'2
85	48 926	15	49 346	45	49 762	5 6'5
86	940	16	360	46	776	6 7'8
87	954	17	374	47	790	7 9'1
88	968	18	388	48	803	8 10'4
89	982	19	402	49	817	9 11'7
3090	48 996	3120	49 415	3150	49 831	

4050

4050" = 1° 7' 30"		4080" = 1° 8' 0"		4110" = 1° 8' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
4050	60 746	4080	61 066	4110	61 384	11	
51	756	81	077	11	395	1	1' 1
52	767	82	087	12	405	2	2' 2
53	778	83	098	13	416	3	3' 3
54	788	84	109	14	426	4	4' 4
55	60 799	85	61 119	15	61 437	5	5' 5
56	810	86	130	16	448	6	6' 6
57	821	87	140	17	458	7	7' 7
58	831	88	151	18	469	8	8' 8
59	842	89	162	19	479	9	9' 9
4060	60 853	4090	61 172	4120	61 490	10	
61	863	91	183	21	500		
62	874	92	194	22	511		
63	885	93	204	23	521		
64	895	94	215	24	532		
65	60 906	95	61 225	25	61 542		
66	917	96	236	26	553		
67	927	97	247	27	563		
68	938	98	257	28	574		
69	949	99	268	29	584		
4070	60 959	4100	61 278	4130	61 595		
71	970	01	289	31	606		
72	981	02	300	32	616	1	1' 0
73	991	03	310	33	627	2	2' 0
74	61 002	04	321	34	637	3	3' 0
75	61 013	05	61 331	35	61 648	4	4' 0
76	023	06	342	36	658	5	5' 0
77	034	07	352	37	669	6	6' 0
78	045	08	363	38	679	7	7' 0
79	055	09	374	39	690	8	8' 0
4080	61 066	4110	61 384	4140	61 700	9	9' 0

4140

4140" = 1° 9' 0"		4170" = 1° 9' 30"		4200" = 1° 10' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
4140	61 700	4170	62 014	4200	62 325	II	
41	711	71	024	01	335	1	1' 1
42	721	72	034	02	346	2	2' 2
43	731	73	045	03	356	3	3' 3
44	742	74	055	04	366	4	4' 4
45	61 752	75	62 066	05	62 377	5	5' 5
46	763	76	076	06	387	6	6' 6
47	773	77	086	07	397	7	7' 7
48	784	78	097	08	408	8	8' 8
49	794	79	107	09	418	9	9' 9
4150	61 805	4180	62 118	4210	62 428		
51	815	81	128	11	439		
52	826	82	138	12	449		
53	836	83	149	13	459		
54	847	84	159	14	469		
55	61 857	85	62 170	15	62 480		
56	868	86	180	16	490		
57	878	87	190	17	500		
58	888	88	201	18	511		
59	899	89	211	19	521		
4160	61 909	4190	62 221	4220	62 531	10	
61	920	91	232	21	542	1	1' 0
62	930	92	242	22	552	2	2' 0
63	941	93	252	23	562	3	3' 0
64	951	94	263	24	572	4	4' 0
65	61 962	95	62 273	25	62 583	5	5' 0
66	972	96	284	26	593	6	6' 0
67	982	97	294	27	603	7	7' 0
68	993	98	304	28	613	8	8' 0
69	62 003	99	315	29	624	9	9' 0
4170	62 014	4200	62 325	4230	62 634		

4230

4230" = 1° 10' 30"		4260" = 1° 11' 0"		4290" = 1° 11' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
4230	62 634	4260	62 941	4290	63 246	11	
31	644	61	951	91	256	1	1' 1
32	655	62	961	92	266	2	2' 2
33	665	63	972	93	276	3	3' 3
34	675	64	982	94	286	4	4' 4
35	62 685	65	62 992	95	63 296	5	5' 5
36	696	66	63 002	96	306	6	6' 6
37	706	67	012	97	317	7	7' 7
38	716	68	022	98	327	8	8' 8
39	726	69	033	99	337	9	9' 9
4240	62 737	4270	63 043	4300	63 347		
41	747	71	053	01	357		
42	757	72	063	02	367		
43	767	73	073	03	377		
44	778	74	083	04	387		
45	62 788	75	63 094	05	63 397		
46	798	76	104	06	407		
47	808	77	114	07	417		
48	818	78	124	08	428		
49	829	79	134	09	438		
4250	62 839	4280	63 144	4310	63 448	10	
51	849	81	155	11	458	1	1' 0
52	859	82	165	12	468	2	2' 0
53	870	83	175	13	478	3	3' 0
54	880	84	185	14	488	4	4' 0
55	62 890	85	63 195	15	63 498	5	5' 0
56	900	86	205	16	508	6	6' 0
57	910	87	215	17	518	7	7' 0
58	921	88	225	18	528	8	8' 0
59	931	89	236	19	538	9	9' 0
4260	62 941	4290	63 246	4320	63 548		

4320

4320" = 1° 12' 0"		4350" = 1° 12' 30"		4380" = 1° 13' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
4320	63 548	4350	63 849	4380	64 147	10	
21	558	51	859	81	157	1	1'0
22	568	52	869	82	167	2	2'0
23	579	53	879	83	177	3	3'0
24	589	54	889	84	187	4	4'0
25	63 599	55	63 899	85	64 197	5	5'0
26	609	56	909	86	207	6	6'0
27	619	57	919	87	217	7	7'0
28	629	58	929	88	227	8	8'0
29	639	59	939	89	237	9	9'0
4330	63 649	4360	63 949	4390	64 246		
31	659	61	959	91	256		
32	669	62	969	92	266		
33	679	63	979	93	276		
34	689	64	988	94	286		
35	63 699	65	63 998	95	64 296		
36	709	66	64 008	96	306		
37	719	67	018	97	316		
38	729	68	028	98	326		
39	739	69	038	99	335		
4340	63 749	4370	64 048	4400	64 345	9	
41	759	71	058	01	355	1	0'9
42	769	72	068	02	365	2	1'8
43	779	73	078	03	375	3	2'7
44	789	74	088	04	385	4	3'6
45	63 799	75	64 098	05	64 395	5	4'5
46	809	76	108	06	404	6	5'4
47	819	77	118	07	414	7	6'3
48	829	78	128	08	424	8	7'2
49	839	79	137	09	434	9	8'1
4350	63 849	4380	64 147	4410	64 444		

4410

4410" = 1° 13' 30"		4440" = 1° 14' 0"		4470" = 1° 14' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
4410	64 444	4440	64 738	4470	65 031	10	
11	454	41	748	71	040	1	1° 0
12	464	42	758	72	050	2	2° 0
13	473	43	768	73	060	3	3° 0
14	483	44	777	74	070	4	4° 0
15	64 493	45	64 787	75	65 079	5	5° 0
16	503	46	797	76	089	6	6° 0
17	513	47	807	77	099	7	7° 0
18	523	48	816	78	108	8	8° 0
19	532	49	826	79	118	9	9° 0
4420	64 542	4450	64 836	4480	65 128		
21	552	51	846	81	137		
22	562	52	856	82	147		
23	572	53	865	83	157		
24	582	54	875	84	167		
25	64 591	55	64 885	85	65 176		
26	601	56	895	86	186		
27	611	57	904	87	196		
28	621	58	914	88	205		
29	631	59	924	89	215		
4430	64 640	4460	64 933	4490	65 225	9	
31	650	61	943	91	234	1	0° 9
32	660	62	953	92	244	2	1° 8
33	670	63	963	93	254	3	2° 7
34	680	64	972	94	263	4	3° 6
35	64 689	65	64 982	95	65 273	5	4° 5
36	699	66	992	96	283	6	5° 4
37	709	67	65 002	97	292	7	6° 3
38	719	68	011	98	302	8	7° 2
39	729	69	021	99	312	9	8° 1
4440	64 738	4470	65 031	4500	65 321		

4500

4500" = 1° 15' 0"		4530" = 1° 15' 30"		4560" = 1° 16' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
4500	65 321	4530	65 610	4560	65 896	10	
01	331	31	619	61	906	1	1'0
02	341	32	629	62	916	2	2'0
03	350	33	639	63	925	3	3'0
04	360	34	648	64	935	4	4'0
05	65 369	35	65 658	65	65 944	5	5'0
06	379	36	667	66	954	6	6'0
07	389	37	677	67	963	7	7'0
08	398	38	686	68	973	8	8'0
09	408	39	696	69	982	9	9'0
4510	65 418	4540	65 706	4570	65 992		
11	427	41	715	71	66 001		
12	437	42	725	72	011		
13	447	43	734	73	020		
14	456	44	744	74	030		
15	65 466	45	65 753	75	66 039		
16	475	46	763	76	049		
17	485	47	772	77	058		
18	495	48	782	78	068		
19	504	49	792	79	077		
4520	65 514	4550	65 801	4580	66 087	9	
21	523	51	811	81	096	1	0'9
22	533	52	820	82	106	2	1'8
23	543	53	830	83	115	3	2'7
24	552	54	839	84	124	4	3'6
25	65 562	55	65 849	85	66 134	5	4'5
26	571	56	858	86	143	6	5'4
27	581	57	868	87	153	7	6'3
28	591	58	877	88	162	8	7'2
29	600	59	887	89	172	9	8'1
4530	65 610	4560	65 896	4590	66 181		

4590

4590" = 1° 16' 30"		4620" = 1° 17' 0"		4650" = 1° 17' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
4590	66 181	4620	66 464	4650	66 745	10	
91	191	21	474	51	755	1	1° 0
92	200	22	483	52	764	2	2° 0
93	210	23	492	53	773	3	3° 0
94	219	24	502	54	783	4	4° 0
95	66 229	25	66 511	55	66 792	5	5° 0
96	238	26	521	56	801	6	6° 0
97	247	27	530	57	811	7	7° 0
98	257	28	539	58	820	8	8° 0
99	266	29	549	59	829	9	9° 0
4600	66 276	4630	66 558	4660	66 839		
01	285	31	567	61	848		
02	295	32	577	62	857		
03	304	33	586	63	867		
04	314	34	596	64	876		
05	66 323	35	66 605	65	66 885		
06	332	36	614	66	894		
07	342	37	624	67	904		
08	351	38	633	68	913		
09	361	39	642	69	922		
4610	66 370	4640	66 652	4670	66 932	9	
11	380	41	661	71	941	1	0° 9
12	389	42	671	72	950	2	1° 8
13	398	43	680	73	960	3	2° 7
14	408	44	689	74	969	4	3° 6
15	66 417	45	66 699	75	66 978	5	4° 5
16	427	46	708	76	987	6	5° 4
17	436	47	717	77	997	7	6° 3
18	445	48	727	78	67 006	8	7° 2
19	455	49	736	79	015	9	8° 1
4620	66 464	4650	66 745	4680	67 025		

3780

3780" = 1° 3' 0"		3810" = 1° 3' 30"		3840" = 1° 4' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
3780	57 749	3810	58 092	3840	58 433	12	
81	761	11	104	41	444	1	1' 2
82	772	12	115	42	456	2	2' 4
83	784	13	127	43	467	3	3' 6
84	795	14	138	44	478	4	4' 8
85	57 807	15	58 149	45	58 490	5	6' 0
86	818	16	161	46	501	6	7' 2
87	830	17	172	47	512	7	8' 4
88	841	18	184	48	524	8	9' 6
89	852	19	195	49	535	9	10' 8
3790	57 864	3820	58 206	3850	58 546		
91	875	21	218	51	557		
92	887	22	229	52	569		
93	898	23	240	53	580		
94	910	24	252	54	591		
95	57 921	25	58 263	55	58 602		
96	933	26	274	56	614		
97	944	27	286	57	625		
98	955	28	297	58	636		
99	967	29	309	59	647		
3800	57 978	3830	58 320	3860	58 659	11	
01	990	31	331	61	670		
02	58 001	32	343	62	681	1	1' 1
03	013	33	354	63	692	2	2' 2
04	024	34	365	64	704	3	3' 3
05	58 035	35	58 377	65	58 715	4	4' 4
06	047	36	388	66	726	5	5' 5
07	058	37	399	67	737	6	6' 6
08	070	38	410	68	749	7	7' 7
09	081	39	422	69	760	8	8' 8
3810	58 092	3840	58 433	3870	58 771	9	9' 9

3870

4770

4770" = 1° 19' 30"		4800" = 1° 20' 0"		4830" = 1° 20' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
4770	67 852	4800	68 124	4830	68 395	10	
71	861	01	133	31	404	1	1° 0
72	870	02	142	32	413	2	2° 0
73	879	03	151	33	422	3	3° 0
74	888	04	160	34	431	4	4° 0
75	67 897	05	68 169	35	68 440	5	5° 0
76	906	06	178	36	449	6	6° 0
77	916	07	187	37	458	7	7° 0
78	925	08	196	38	467	8	8° 0
79	934	09	205	39	476	9	9° 0
4780	67 943	4810	68 215	4840	68 485		
81	952	11	224	41	494		
82	961	12	233	42	502		
83	970	13	242	43	511		
84	979	14	251	44	520		
85	67 988	15	68 260	45	68 529		
86	997	16	269	46	538		
87	68 006	17	278	47	547		
88	015	18	287	48	556		
89	024	19	296	49	565		
4790	68 034	4820	68 305	4850	68 574	9	
91	043	21	314	51	583	1	0° 9
92	052	22	323	52	592	2	1° 8
93	061	23	332	53	601	3	2° 7
94	070	24	341	54	610	4	3° 6
95	68 079	25	68 350	55	68 619	5	4° 5
96	088	26	359	56	628	6	5° 4
97	097	27	368	57	637	7	6° 3
98	106	28	377	58	646	8	7° 2
99	115	29	386	59	655	9	8° 1
4800	68 124	4830	68 395	4860	68 664		

4860" = 1° 21' 0"		4890" = 1° 21' 30"		4920" = 1° 22' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
4860	68 664	4890	68 931	4920	69 197	9	
61	673	91	940	21	205	1	0.9
62	681	92	949	22	214	2	1.8
63	690	93	958	23	223	3	2.7
64	699	94	966	24	232	4	3.6
65	68 708	95	68 975	25	69 241	5	4.5
66	717	96	984	26	249	6	5.4
67	726	97	993	27	258	7	6.3
68	735	98	69 002	28	267	8	7.2
69	744	99	011	29	276	9	8.1
4870	68 753	4900	69 020	4930	69 285		
71	762	01	028	31	294		
72	771	02	037	32	302		
73	780	03	046	33	311		
74	789	04	055	34	320		
75	68 797	05	69 064	35	69 329		
76	806	06	073	36	338		
77	815	07	082	37	346		
78	824	08	090	38	355		
79	833	09	099	39	364		
4880	68 842	4910	69 108	4940	69 373	8	
81	851	11	117	41	381	1	0.8
82	860	12	126	42	390	2	1.6
83	869	13	135	43	399	3	2.4
84	878	14	144	44	408	4	3.2
85	68 886	15	69 152	45	69 417	5	4.0
86	895	16	161	46	425	6	4.8
87	904	17	170	47	434	7	5.6
88	913	18	179	48	443	8	6.4
89	922	19	188	49	452	9	7.2
4890	68 931	4920	69 197	4950	69 461		

4950" = 1° 22' 30"		4980" = 1° 23' 0"		5010" = 1° 23' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
4950	69 461	4980	69 723	5010	69 984	9	
51	469	81	732	11	992	1	0.9
52	478	82	740	12	70 001	2	1.8
53	487	83	749	13	010	3	2.7
54	496	84	758	14	018	4	3.6
55	69 504	85	69 767	15	70 027	5	4.5
56	513	86	775	16	036	6	5.4
57	522	87	784	17	044	7	6.3
58	531	88	793	18	053	8	7.2
59	539	89	801	19	062	9	8.1
4960	69 548	4990	69 810	5020	70 070		
61	557	91	819	21	079		
62	566	92	827	22	088		
63	574	93	836	23	096		
64	583	94	845	24	105		
65	69 592	95	69 854	25	70 114		
66	601	96	862	26	122		
67	609	97	871	27	131		
68	618	98	880	28	140		
69	627	99	888	29	148		
4970	69 636	5000	69 897	5030	70 157	8	
71	644	01	906	31	165	1	0.8
72	653	02	914	32	174	2	1.6
73	662	03	923	33	183	3	2.4
74	671	04	932	34	191	4	3.2
75	69 679	05	69 940	35	70 200	5	4.0
76	688	06	949	36	209	6	4.8
77	697	07	958	37	217	7	5.6
78	705	08	966	38	226	8	6.4
79	714	09	975	39	234	9	7.2
4980	69 723	5010	69 984	5040	70 243		

5040" = 1° 24' 0"		5070" = 1° 24' 30"		5100" = 1° 25' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
5040	70 243	5070	70 501	5100	70 757	9	
41	252	71	509	01	766	1	0.9
42	260	72	518	02	774	2	1.8
43	269	73	526	03	783	3	2.7
44	278	74	535	04	791	4	3.6
45	70 286	75	70 544	05	70 800	5	4.5
46	295	76	552	06	808	6	5.4
47	303	77	561	07	817	7	6.3
48	312	78	569	08	825	8	7.2
49	321	79	578	09	834	9	8.1
5050	70 329	5080	70 586	5110	70 842		
51	338	81	595	11	851		
52	346	82	603	12	859		
53	355	83	612	13	868		
54	364	84	621	14	876		
55	70 372	85	70 629	15	70 885		
56	381	86	638	16	893		
57	389	87	646	17	902		
58	398	88	655	18	910		
59	406	89	663	19	919		
5060	70 415	5090	70 672	5120	70 927	8	
61	424	91	680	21	935		
62	432	92	689	22	944	1	0.8
63	441	93	697	23	952	2	1.6
64	449	94	706	24	961	3	2.4
65	70 458	95	70 714	25	70 969	4	3.2
66	467	96	723	26	978	5	4.0
67	475	97	731	27	986	6	4.8
68	484	98	740	28	995	7	5.6
69	492	99	749	29	71 003	8	6.4
						9	7.2
5070	70 501	5100	70 757	5130	71 012		

5130

5130" = 1° 25' 30"		5160" = 1° 26' 0"		5190" = 1° 26' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
5130	71 012	5160	71 265	5190	71 517	9
31	020	61	273	91	525	1 0.9
32	029	62	282	92	533	2 1.8
33	037	63	290	93	542	3 2.7
34	046	64	299	94	550	4 3.6
35	71 054	65	71 307	95	71 559	5 4.5
36	063	66	315	96	567	6 5.4
37	071	67	324	97	575	7 6.3
38	079	68	332	98	584	8 7.2
39	088	69	341	99	592	9 8.1
5140	71 096	5170	71 349	5200	71 600	
41	105	71	357	01	609	
42	113	72	366	02	617	
43	122	73	374	03	625	
44	130	74	383	04	634	
45	71 139	75	71 391	05	71 642	
46	147	76	399	06	650	
47	155	77	408	07	659	
48	164	78	416	08	667	
49	172	79	425	09	675	
5150	71 181	5180	71 433	5210	71 684	8
51	189	81	441	11	692	1 0.8
52	198	82	450	12	700	2 1.6
53	206	83	458	13	709	3 2.4
54	214	84	466	14	717	4 3.2
55	71 223	85	71 475	15	71 725	5 4.0
56	231	86	483	16	734	6 4.8
57	240	87	492	17	742	7 5.6
58	248	88	500	18	750	8 6.4
59	257	89	508	19	759	9 7.2
5160	71 265	5190	71 517	5220	71 767	

5220

5220" = 1° 27' 0"		5250" = 1° 27' 30"		5280" = 1° 28' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
5220	71 767	5250	72 016	5280	72 263	9	
21	775	51	024	81	272	1	0.9
22	784	52	032	82	280	2	1.8
23	792	53	041	83	288	3	2.7
24	800	54	049	84	296	4	3.6
25	71 809	55	72 057	85	72 304	5	4.5
26	817	56	066	86	313	6	5.4
27	825	57	074	87	321	7	6.3
28	834	58	082	88	329	8	7.2
29	842	59	090	89	337	9	8.1
5230	71 850	5260	72 099	5290	72 346		
31	858	61	107	91	354		
32	867	62	115	92	362		
33	875	63	123	93	370		
34	883	64	132	94	378		
35	71 892	65	72 140	95	72 387		
36	900	66	148	96	395		
37	908	67	156	97	403		
38	917	68	165	98	411		
39	925	69	173	99	419		
5240	71 933	5270	72 181	5300	72 428	8	
41	941	71	189	01	436	1	0.8
42	950	72	198	02	444	2	1.6
43	958	73	206	03	452	3	2.4
44	966	74	214	04	460	4	3.2
45	71 975	75	72 222	05	72 469	5	4.0
46	983	76	230	06	477	6	4.8
47	991	77	239	07	485	7	5.6
48	999	78	247	08	493	8	6.4
49	72 008	79	255	09	501	9	7.2
5250	72 016	5280	72 263	5310	72 509		

5310

5310" = 1° 28' 30"		5340" = 1° 29' 0"		5370" = 1° 29' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
5310	72 509	5340	72 754	5370	72 997	9
11	518	41	762	71	73 006	1 0.9
12	526	42	770	72	014	2 1.8
13	534	43	779	73	022	3 2.7
14	542	44	787	74	030	4 3.6
15	72 550	45	72 795	75	73 038	5 4.5
16	558	46	803	76	046	6 5.4
17	567	47	811	77	054	7 6.3
18	575	48	819	78	062	8 7.2
19	583	49	827	79	070	9 8.1
5320	72 591	5350	72 835	5380	73 078	
21	599	51	843	81	086	
22	607	52	852	82	094	
23	616	53	860	83	102	
24	624	54	868	84	111	
25	72 632	55	72 876	85	73 119	
26	640	56	884	86	127	
27	648	57	892	87	135	
28	656	58	900	88	143	
29	665	59	908	89	151	
5330	72 673	5360	72 916	5390	73 159	8
31	681	61	925	91	167	1 0.8
32	689	62	933	92	175	2 1.6
33	697	63	941	93	183	3 2.4
34	705	64	949	94	191	4 3.2
35	72 713	65	72 957	95	73 199	5 4.0
36	722	66	965	96	207	6 4.8
37	730	67	973	97	215	7 5.6
38	738	68	981	98	223	8 6.4
39	746	69	989	99	231	9 7.2
5340	72 754	5370	72 997	5400	73 239	

5400

5400" = 1° 30' 0"		5430" = 1° 30' 30"		5460" = 1° 31' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
5400	73 239	5430	73 480	5460	73 719	8	
01	247	31	488	61	727	1	0·8
02	255	32	496	62	735	2	1·6
03	263	33	504	63	743	3	2·4
04	272	34	512	64	751	4	3·2
05	73 280	35	73 520	65	73 759	5	4·0
06	288	36	528	66	767	6	4·8
07	296	37	536	67	775	7	5·6
08	304	38	544	68	783	8	6·4
09	312	39	552	69	791	9	7·2
5410	73 320	5440	73 560	5470	73 799		
11	328	41	568	71	807		
12	336	42	576	72	815		
13	344	43	584	73	823		
14	352	44	592	74	830		
15	73 360	45	73 600	75	73 838		
16	368	46	608	76	846		
17	376	47	616	77	854		
18	384	48	624	78	862		
19	392	49	632	79	870		
5420	73 400	5450	73 640	5480	73 878	7	
21	408	51	648	81	886	1	0·7
22	416	52	656	82	894	2	1·4
23	424	53	664	83	902	3	2·1
24	432	54	672	84	910	4	2·8
25	73 440	55	73 679	85	73 918	5	3·5
26	448	56	687	86	926	6	4·2
27	456	57	695	87	933	7	4·9
28	464	58	703	88	941	8	5·6
29	472	59	711	89	949	9	6·3
5430	73 480	5460	73 719	5490	73 957		

5490" = 1° 31' 30"		5520" = 1° 32' 0"		5550" = 1° 32' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
5490	73 957	5520	74 194	5550	74 429	8	
91	965	21	202	51	437	1	0.8
92	973	22	210	52	445	2	1.6
93	981	23	218	53	453	3	2.4
94	989	24	225	54	461	4	3.2
95	73 997	25	74 233	55	74 468	5	4.0
96	74 005	26	241	56	476	6	4.8
97	013	27	249	57	484	7	5.6
98	020	28	257	58	492	8	6.4
99	028	29	265	59	500	9	7.2
5500	74 036	5530	74 273	5560	74 507	7	
01	044	31	280	61	515		
02	052	32	288	62	523		
03	060	33	296	63	531		
04	068	34	304	64	539		
05	74 076	35	74 312	65	74 547		
06	084	36	320	66	554		
07	092	37	327	67	562		
08	099	38	335	68	570		
09	107	39	343	69	578		
5510	74 115	5540	74 351	5570	74 586	7	
11	123	41	359	71	593		
12	131	42	367	72	601		
13	139	43	374	73	609		
14	147	44	382	74	617		
15	74 155	45	74 390	75	74 624		
16	162	46	398	76	632		
17	170	47	406	77	640		
18	178	48	414	78	648		
19	186	49	421	79	656		
5520	74 194	5550	74 429	5580	74 663		

5580" = 1° 33' 0"		5610" = 1° 33' 30"		5640" = 1° 34' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
5580	74 663	5610	74 896	5640	75 128	8	
81	671	11	904	41	136	1	0·8
82	679	12	912	42	143	2	1·6
83	687	13	920	43	151	3	2·4
84	695	14	927	44	159	4	3·2
85	74 702	15	74 935	45	75 166	5	4·0
86	710	16	943	46	174	6	4·8
87	718	17	950	47	182	7	5·6
88	726	18	958	48	189	8	6·4
89	733	19	966	49	197	9	7·2
5590	74 741	5620	74 974	5650	75 205		
91	749	21	981	51	213		
92	757	22	989	52	220		
93	764	23	997	53	228		
94	772	24	75 005	54	236		
95	74 780	25	75 012	55	75 243		
96	788	26	020	56	251		
97	796	27	028	57	259		
98	803	28	035	58	266		
99	811	29	043	59	274		
5600	74 819	5630	75 051	5660	75 282	7	
01	827	31	059	61	289	1	0·7
02	834	32	066	62	297	2	1·4
03	842	33	074	63	305	3	2·1
04	850	34	082	64	312	4	2·8
05	74 858	35	75 089	65	75 320	5	3·5
06	865	36	097	66	328	6	4·2
07	873	37	105	67	335	7	4·9
08	881	38	113	68	343	8	5·6
09	889	39	120	69	351	9	6·3
5610	74 896	5640	75 128	5670	75 358		

5670" = 1° 34' 30"		5700" = 1° 35' 0"		5730" = 1° 35' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
5670	75 358	5700	75 587	5730	75 815	8
71	366	01	595	31	823	1 0·8
72	374	02	603	32	831	2 1·6
73	381	03	610	33	838	3 2·4
74	389	04	618	34	846	4 3·2
75	75 397	05	75 626	35	75 853	5 4·0
76	404	06	633	36	861	6 4·8
77	412	07	641	37	868	7 5·6
78	420	08	648	38	876	8 6·4
79	427	09	656	39	884	9 7·2
5680	75 435	5710	75 664	5740	75 891	
81	442	11	671	41	899	
82	450	12	679	42	906	
83	458	13	686	43	914	
84	465	14	694	44	921	
85	75 473	15	75 702	45	75 929	
86	481	16	709	46	937	
87	488	17	717	47	944	
88	496	18	724	48	952	
89	504	19	732	49	959	
5690	75 511	5720	75 740	5750	75 967	7
91	519	21	747	51	974	1 0·7
92	526	22	755	52	982	2 1·4
93	534	23	762	53	989	3 2·1
94	542	24	770	54	997	4 2·8
95	75 549	25	75 778	55	76 005	5 3·5
96	557	26	785	56	012	6 4·2
97	565	27	793	57	020	7 4·9
98	572	28	800	58	027	8 5·6
99	580	29	808	59	035	9 6·3
5700	75 587	5730	75 815	5760	76 042	

5760

5760" = 1° 36' 0"		5790" = 1° 36' 30"		5820" = 1° 37' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
5760	76 042	5790	76 268	5820	76 492	8
61	050	91	275	21	500	1 0.8
62	057	92	283	22	507	2 1.6
63	065	93	290	23	515	3 2.4
64	072	94	298	24	522	4 3.2
65	76 080	95	76 305	25	76 530	5 4.0
66	087	96	313	26	537	6 4.8
67	095	97	320	27	545	7 5.6
68	103	98	328	28	552	8 6.4
69	110	99	335	29	559	9 7.2
5770	76 118	5800	76 343	5830	76 567	
71	125	01	350	31	574	
72	133	02	358	32	582	
73	140	03	365	33	589	
74	148	04	373	34	597	
75	76 155	05	76 380	35	76 604	
76	163	06	388	36	612	
77	170	07	395	37	619	
78	178	08	403	38	626	
79	185	09	410	39	634	
5780	76 193	5810	76 418	5840	76 641	7
81	200	11	425	41	649	1 0.7
82	208	12	433	42	656	2 1.4
83	215	13	440	43	664	3 2.1
84	223	14	448	44	671	4 2.8
85	76 230	15	76 455	45	76 678	5 3.5
86	238	16	462	46	686	6 4.2
87	245	17	470	47	693	7 4.9
88	253	18	477	48	701	8 5.6
89	260	19	485	49	708	9 6.3
5790	76 268	5820	76 492	5850	76 716	

5850

5850" = 1° 37' 30"		5880" = 1° 38' 0"		5910" = 1° 38' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
5850	76 716	5880	76 938	5910	77 159	8	
51	723	81	945	11	166	1	0.8
52	730	82	953	12	173	2	1.6
53	738	83	960	13	181	3	2.4
54	745	84	967	14	188	4	3.2
55	76 753	85	76 975	15	77 195	5	4.0
56	760	86	982	16	203	6	4.8
57	768	87	989	17	210	7	5.6
58	775	88	997	18	217	8	6.4
59	782	89	77 004	19	225	9	7.2
5860	76 790	5890	77 012	5920	77 232		
61	797	91	019	21	240		
62	805	92	026	22	247		
63	812	93	034	23	254		
64	819	94	041	24	262		
65	76 827	95	77 048	25	77 269		
66	834	96	056	26	276		
67	842	97	063	27	283		
68	849	98	070	28	291		
69	856	99	078	29	298		
5870	76 864	5900	77 085	5930	77 305	7	
71	871	01	093	31	313		
72	879	02	100	32	320	1	0.7
73	886	03	107	33	327	2	1.4
74	893	04	115	34	335	3	2.1
75	76 901	05	77 122	35	77 342	4	2.8
76	908	06	129	36	349	5	3.5
77	916	07	137	37	357	6	4.2
78	923	08	144	38	364	7	4.9
79	930	09	151	39	371	8	5.6
5880	76 938	5910	77 159	5940	77 379	9	6.3

5940" = 1° 39' 0"		5970" = 1° 39' 30"		6000" = 1° 40' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
5940	77 379	5970	77 597	6000	77 815	8	
41	386	71	605	01	822	1	0.8
42	393	72	612	02	830	2	1.6
43	401	73	619	03	837	3	2.4
44	408	74	627	04	844	4	3.2
45	77 415	75	77 634	05	77 851	5	4.0
46	422	76	641	06	859	6	4.8
47	430	77	648	07	866	7	5.6
48	437	78	656	08	873	8	6.4
49	444	79	663	09	880	9	7.2
5950	77 452	5980	77 670	6010	77 887		
51	459	81	677	11	895		
52	466	82	685	12	902		
53	474	83	692	13	909		
54	481	84	699	14	916		
55	77 488	85	77 706	15	77 924		
56	495	86	714	16	931		
57	503	87	721	17	938		
58	510	88	728	18	945		
59	517	89	735	19	952		
5960	77 525	5990	77 743	6020	77 960	7	
61	532	91	750	21	967	1	0.7
62	539	92	757	22	974	2	1.4
63	546	93	764	23	981	3	2.1
64	554	94	772	24	988	4	2.8
65	77 561	95	77 779	25	77 996	5	3.5
66	568	96	786	26	78 003	6	4.2
67	576	97	793	27	010	7	4.9
68	583	98	801	28	017	8	5.6
69	590	99	808	29	025	9	6.3
5970	77 597	6000	77 815	6030	78 032		

6030

6030" = 1° 40' 30"		6060" = 1° 41' 0"		6090" = 1° 41' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6030	78 032	6060	78 247	6090	78 462	8	
31	039	61	254	91	469	1	0.8
32	046	62	262	92	476	2	1.6
33	053	63	269	93	483	3	2.4
34	061	64	276	94	490	4	3.2
35	78 068	65	78 283	95	78 497	5	4.0
36	075	66	290	96	504	6	4.8
37	082	67	297	97	512	7	5.6
38	089	68	305	98	519	8	6.4
39	097	69	312	99	526	9	7.2
6040	78 104	6070	78 319	6100	78 533		
41	111	71	326	01	540		
42	118	72	333	02	547		
43	125	73	340	03	554		
44	132	74	347	04	561		
45	78 140	75	78 355	05	78 569		
46	147	76	362	06	576		
47	154	77	369	07	583		
48	161	78	376	08	590		
49	168	79	383	09	597		
6050	78 176	6080	78 390	6110	78 604	7	
51	183	81	398	11	611		
52	190	82	405	12	618	1	0.7
53	197	83	412	13	625	2	1.4
54	204	84	419	14	633	3	2.1
55	78 211	85	78 426	15	78 640	4	2.8
56	219	86	433	16	647	5	3.5
57	226	87	440	17	654	6	4.2
58	233	88	447	18	661	7	4.9
59	240	89	455	19	668	8	5.6
6060	78 247	6090	78 462	6120	78 675	9	6.3

6120" = 1° 42' 0"		6150" = 1° 42' 30"		6180" = 1° 43' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6120	78 675	6150	78 888	6180	79 099	8	
21	682	51	895	81	106	1	0.8
22	689	52	902	82	113	2	1.6
23	696	53	909	83	120	3	2.4
24	704	54	916	84	127	4	3.2
25	78 711	55	78 923	85	79 134	5	4.0
26	718	56	930	86	141	6	4.8
27	725	57	937	87	148	7	5.6
28	732	58	944	88	155	8	6.4
29	739	59	951	89	162	9	7.2
6130	78 746	6160	78 958	6190	79 169		
31	753	61	965	91	176		
32	760	62	972	92	183		
33	767	63	979	93	190		
34	774	64	986	94	197		
35	78 781	65	78 993	95	79 204		
36	789	66	79 000	96	211		
37	796	67	007	97	218		
38	803	68	014	98	225		
39	810	69	021	99	232		
6140	78 817	6170	79 029	6200	79 239	7	
41	824	71	036	01	246	1	0.7
42	831	72	043	02	253	2	1.4
43	838	73	050	03	260	3	2.1
44	845	74	057	04	267	4	2.8
45	78 852	75	79 064	05	79 274	5	3.5
46	859	76	071	06	281	6	4.2
47	866	77	078	07	288	7	4.9
48	873	78	085	08	295	8	5.6
49	880	79	092	09	302	9	6.3
6150	78 888	6180	79 099	6210	79 309		

6210

6210" = 1° 43' 30"		6240" = 1° 44' 0"		6270" = 1° 44' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
6210	79 309	6240	79 518	6270	79 727	7
11	316	41	525	71	734	1 0'7
12	323	42	532	72	741	2 1'4
13	330	43	539	73	748	3 2'1
14	337	44	546	74	754	4 2'8
15	79 344	45	79 553	75	79 761	5 3'5
16	351	46	560	76	768	6 4'2
17	358	47	567	77	775	7 4'9
18	365	48	574	78	782	8 5'6
19	372	49	581	79	789	9 6'3
6220	79 379	6250	79 588	6280	79 796	
21	386	51	595	81	803	
22	393	52	602	82	810	
23	400	53	609	83	817	
24	407	54	616	84	824	
25	79 414	55	79 623	85	79 831	
26	421	56	630	86	837	
27	428	57	637	87	844	
28	435	58	644	88	851	
29	442	59	650	89	858	
6230	79 449	6260	79 657	6290	79 865	6
31	456	61	664	91	872	1 0'6
32	463	62	671	92	879	2 1'2
33	470	63	678	93	886	3 1'8
34	477	64	685	94	893	4 2'4
35	79 484	65	79 692	95	79 900	5 3'0
36	491	66	699	96	906	6 3'6
37	498	67	706	97	913	7 4'2
38	505	68	713	98	920	8 4'8
39	511	69	720	99	927	9 5'4
6240	79 518	6270	79 727	6300	79 934	

6300

6300" = 1° 45' 0"		6330" = 1° 45' 30"		6360" = 1° 46' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6300	79 934	6330	80 140	6360	80 346	7	
01	941	31	147	61	353	1	0'7
02	948	32	154	62	359	2	1'4
03	955	33	161	63	366	3	2'1
04	962	34	168	64	373	4	2'8
05	79 969	35	80 175	65	80 380	5	3'5
06	975	36	182	66	387	6	4'2
07	982	37	188	67	393	7	4'9
08	989	38	195	68	400	8	5'6
09	996	39	202	69	407	9	6'3
6310	80 003	6340	80 209	6370	80 414		
11	010	41	216	71	421		
12	017	42	223	72	428		
13	024	43	229	73	434		
14	030	44	236	74	441		
15	80 037	45	80 243	75	80 448		
16	044	46	250	76	455		
17	051	47	257	77	462		
18	058	48	264	78	468		
19	065	49	271	79	475		
6320	80 072	6350	80 277	6380	80 482	6	
21	079	51	284	81	489	1	0'6
22	085	52	291	82	496	2	1'2
23	092	53	298	83	502	3	1'8
24	099	54	305	84	509	4	2'4
25	80 106	55	80 312	85	80 516	5	3'0
26	113	56	318	86	523	6	3'6
27	120	57	325	87	530	7	4'2
28	127	58	332	88	536	8	4'8
29	134	59	339	89	543	9	5'4
6330	80 140	6360	80 346	6390	80 550		

6390

6390" = 1° 46' 30"		6420" = 1° 47' 0"		6450" = 1° 47' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6390	80 550	6420	80 754	6450	80 956	7	
91	557	21	760	51	963	1	0.7
92	564	22	767	52	969	2	1.4
93	570	23	774	53	976	3	2.1
94	577	24	781	54	983	4	2.8
95	80 584	25	80 787	55	80 990	5	3.5
96	591	26	794	56	996	6	4.2
97	598	27	801	57	81 003	7	4.9
98	604	28	808	58	010	8	5.6
99	611	29	814	59	017	9	6.3
6400	80 618	6430	80 821	6460	81 023		
01	625	31	828	61	030		
02	632	32	835	62	037		
03	638	33	841	63	043		
04	645	34	848	64	050		
05	80 652	35	80 855	65	81 057		
06	659	36	862	66	064		
07	665	37	868	67	070		
08	672	38	875	68	077		
09	679	39	882	69	084		
6410	80 686	6440	80 889	6470	81 090	8	
11	693	41	895	71	097		
12	699	42	902	72	104	1	0.6
13	706	43	909	73	111	2	1.2
14	713	44	916	74	117	3	1.8
15	80 720	45	80 922	75	81 124	4	2.4
16	726	46	929	76	131	5	3.0
17	733	47	936	77	137	6	3.6
18	740	48	943	78	144	7	4.2
19	747	49	949	79	151	8	4.8
6420	80 754	6450	80 956	6480	81 158	9	5.4

6480" = 1° 48' 0"		6510" = 1° 48' 30"		6540" = 1° 49' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
6480	81 158	6510	81 358	6540	81 558	7
81	164	11	365	41	564	1 0.7
82	171	12	371	42	571	2 1.4
83	178	13	378	43	578	3 2.1
84	184	14	385	44	584	4 2.8
85	81 191	15	81 391	45	81 591	5 3.5
86	198	16	398	46	598	6 4.2
87	204	17	405	47	604	7 4.9
88	211	18	411	48	611	8 5.6
89	218	19	418	49	617	9 6.3
6490	81 224	6520	81 425	6550	81 624	
91	231	21	431	51	631	
92	238	22	438	52	637	
93	245	23	445	53	644	
94	251	24	451	54	651	
95	81 258	25	81 458	55	81 657	
96	265	26	465	56	664	
97	271	27	471	57	671	
98	278	28	478	58	677	
99	285	29	485	59	684	
6500	81 291	6530	81 491	6560	81 690	6
01	298	31	498	61	697	
02	305	32	505	62	704	1 0.6
03	311	33	511	63	710	2 1.2
04	318	34	518	64	717	3 1.8
05	81 325	35	81 525	65	81 723	4 2.4
06	331	36	531	66	730	5 3.0
07	338	37	538	67	737	6 3.6
08	345	38	544	68	743	7 4.2
09	351	39	551	69	750	8 4.8
						9 5.4
6510	81 358	6540	81 558	6570	81 757	

6570

6570" = 1° 49' 30"		6600" = 1° 50' 0"		6630" = 1° 50' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6570	81 757	6600	81 954	6630	82 151	7	
71	763	01	961	31	158	1	0.7
72	770	02	968	32	164	2	1.4
73	776	03	974	33	171	3	2.1
74	783	04	981	34	178	4	2.8
75	81 790	05	81 987	35	82 184	5	3.5
76	796	06	994	36	191	6	4.2
77	803	07	82 000	37	197	7	4.9
78	809	08	007	38	204	8	5.6
79	816	09	014	39	210	9	6.3
6580	81 823	6610	82 020	6640	82 217	6	
81	829	11	027	41	223		
82	836	12	033	42	230		
83	842	13	040	43	236		
84	849	14	046	44	243		
85	81 856	15	82 053	45	82 249		
86	862	16	060	46	256		
87	869	17	066	47	263		
88	875	18	073	48	269		
89	882	19	079	49	276		
6590	81 889	6620	82 086	6650	82 282	6	
91	895	21	092	51	289		
92	902	22	099	52	295		
93	908	23	105	53	302		
94	915	24	112	54	308		
95	81 921	25	82 119	55	82 315		
96	928	26	125	56	321		
97	935	27	132	57	328		
98	941	28	138	58	334		
99	948	29	145	59	341		
6600	81 954	6630	82 151	6660	82 347		

6660

6660" = 1° 51' 0"		6690" = 1° 51' 30"		6720" = 1° 52' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6660	82 347	6690	82 543	6720	82 737	7	
61	354	91	549	21	743	1	0·7
62	360	92	556	22	750	2	1·4
63	367	93	562	23	756	3	2·1
64	373	94	569	24	763	4	2·8
65	82 380	95	82 575	25	82 769	5	3·5
66	387	96	582	26	776	6	4·2
67	393	97	588	27	782	7	4·9
68	400	98	595	28	789	8	5·6
69	406	99	601	29	795	9	6·3
6670	82 413	6700	82 607	6730	82 802		
71	419	01	614	31	808		
72	426	02	620	32	814		
73	432	03	627	33	821		
74	439	04	633	34	827		
75	82 445	05	82 640	35	82 834		
76	452	06	646	36	840		
77	458	07	653	37	847		
78	465	08	659	38	853		
79	471	09	666	39	860		
6680	82 478	6710	82 672	6740	82 866	8	
81	484	11	679	41	872	1	0·6
82	491	12	685	42	879	2	1·2
83	497	13	692	43	885	3	1·8
84	504	14	698	44	892	4	2·4
85	82 510	15	82 705	45	82 898	5	3·0
86	517	16	711	46	905	6	3·6
87	523	17	718	47	911	7	4·2
88	530	18	724	48	918	8	4·8
89	536	19	730	49	924	9	5·4
6690	82 543	6720	82 737	6750	82 930		

6750

6750" = 1° 52' 30"		6780" = 1° 53' 0"		6810" = 1° 53' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6750	82 930	6780	83 123	6810	83 315	7	
51	937	81	129	11	321	1	0'7
52	943	82	136	12	327	2	1'4
53	950	83	142	13	334	3	2'1
54	956	84	149	14	340	4	2'8
55	82 963	85	83 155	15	83 347	5	3'5
56	969	86	161	16	353	6	4'2
57	975	87	168	17	359	7	4'9
58	982	88	174	18	366	8	5'6
59	988	89	181	19	372	9	6'3
6760	82 995	6790	83 187	6820	83 378		
61	83 001	91	193	21	385		
62	008	92	200	22	391		
63	014	93	206	23	398		
64	020	94	213	24	404		
65	83 027	95	83 219	25	83 410		
66	033	96	225	26	417		
67	040	97	232	27	423		
68	046	98	238	28	429		
69	052	99	245	29	436		
6770	83 059	6800	83 251	6830	83 442	6	
71	065	01	257	31	448		
72	072	02	264	32	455	1	0'6
73	078	03	270	33	461	2	1'2
74	085	04	276	34	467	3	1'8
75	83 091	05	83 283	35	83 474	4	2'4
76	097	06	289	36	480	5	3'0
77	104	07	296	37	487	6	3'6
78	110	08	302	38	493	7	4'2
79	117	09	308	39	499	8	4'8
6780	83 123	6810	83 315	6840	83 506	9	5'4

6840

6840" = 1° 54' 0"		6870" = 1° 54' 30"		6900" = 1° 55' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6840	83 506	6870	83 696	6900	83 885	7	
41	512	71	702	01	891	1	0.7
42	518	72	708	02	897	2	1.4
43	525	73	715	03	904	3	2.1
44	531	74	721	04	910	4	2.8
45	83 537	75	83 727	05	83 916	5	3.5
46	544	76	734	06	923	6	4.2
47	550	77	740	07	929	7	4.9
48	556	78	746	08	935	8	5.6
49	563	79	753	09	942	9	6.3
6850	83 569	6880	83 759	6910	83 948		
51	575	81	765	11	954		
52	582	82	771	12	960		
53	588	83	778	13	967		
54	594	84	784	14	973		
55	83 601	85	83 790	15	83 979		
56	607	86	797	16	985		
57	613	87	803	17	992		
58	620	88	809	18	998		
59	626	89	816	19	84 004		
6860	83 632	6890	83 822	6920	84 011	6	
61	639	91	828	21	017	1	0.6
62	645	92	835	22	023	2	1.2
63	651	93	841	23	029	3	1.8
64	658	94	847	24	036	4	2.4
65	83 664	95	83 853	25	84 042	5	3.0
66	670	96	860	26	048	6	3.6
67	677	97	866	27	055	7	4.2
68	683	98	872	28	061	8	4.8
69	689	99	879	29	067	9	5.4
6870	83 696	6900	83 885	6930	84 073		

6930

6930" = 1° 55' 30"		6960" = 1° 56' 0"		6990" = 1° 56' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6930	84 073	6960	84 261	6990	84 448	7	
31	080	61	267	91	454	1	0'7
32	086	62	273	92	460	2	1'4
33	092	63	280	93	466	3	2'1
34	098	64	286	94	473	4	2'8
35	84 105	65	84 292	95	84 479	5	3'5
36	111	66	298	96	485	6	4'2
37	117	67	305	97	491	7	4'9
38	123	68	311	98	497	8	5'6
39	130	69	317	99	504	9	6'3
6940	84 136	6970	84 323	7000	84 510	6	
41	142	71	330	01	516		
42	148	72	336	02	522		
43	155	73	342	03	528		
44	161	74	348	04	535		
45	84 167	75	84 354	05	84 541		
46	173	76	361	06	547		
47	180	77	367	07	553		
48	186	78	373	08	559		
49	192	79	379	09	566		
6950	84 198	6980	84 386	7010	84 572	6	
51	205	81	392	11	578		
52	211	82	398	12	584		
53	217	83	404	13	590		
54	223	84	410	14	597		
55	84 230	85	84 417	15	84 603		
56	236	86	423	16	609		
57	242	87	429	17	615		
58	248	88	435	18	621		
59	255	89	442	19	628		
6960	84 261	6990	84 448	7020	84 634		

7020" = 1° 5' 0"		7050" = 1° 5' 30"		7080" = 1° 5' 0"		2P.
N.	Log.	N.	Log.	N.	Log.	
7020	34 634	7050	34 319	7080	35 205	7
21	640	51	325	31	208	1 2 1
22	646	52	331	32	210	2 1 1
23	652	53	337	33	212	3 1 1
24	658	54	344	34	215	4 1 1
25	34 665	55	34 350	35	35 217	5 1 1
26	671	56	356	36	219	6 1 1
27	677	57	362	37	220	7 1 1
28	683	58	368	38	222	8 1 1
29	689	59	374	39	225	9 1 1
7030	34 696	7060	34 380	7090	35 205	
31	702	61	387	91	211	
32	708	62	393	92	211	
33	714	63	399	93	213	
34	720	64	405	94	214	
35	34 726	65	34 911	95	35 205	
36	733	66	917	96	201	
37	739	67	924	97	107	
38	745	68	930	98	114	
39	751	69	936	99	120	
7040	34 757	7070	34 942	7100	35 126	
41	763	71	948	11	132	
42	770	72	954	12	138	1 2 1
43	776	73	960	13	144	2 1 1
44	782	74	967	14	150	3 1 1
45	34 788	75	34 973	15	35 156	4 1 1
46	794	76	979	16	163	5 1 1
47	800	77	985	17	169	6 1 1
48	807	78	991	18	175	7 1 1
49	813	79	997	19	181	8 1 1
7050	34 819	7080	35 003	7110	35 187	

7110

7110° = 1° 58' 30"		7140° = 1° 59' 0"		7170° = 1° 59' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
7110	85 187	7140	85 370	7170	85 552	7
11	193	41	376	71	558	1 0.7
12	199	42	382	72	564	2 1.4
13	205	43	388	73	570	3 2.1
14	211	44	394	74	576	4 2.8
15	85 217	45	85 400	75	85 582	5 3.5
16	224	46	406	76	588	6 4.2
17	230	47	412	77	594	7 4.9
18	236	48	418	78	600	8 5.6
19	242	49	425	79	606	9 6.3
7120	85 248	7150	85 431	7180	85 612	
21	254	51	437	81	618	
22	260	52	443	82	625	
23	266	53	449	83	631	
24	272	54	455	84	637	
25	85 278	55	85 461	85	85 643	
26	285	56	467	86	649	
27	291	57	473	87	655	
28	297	58	479	88	661	
29	303	59	485	89	667	
7130	85 309	7160	85 491	7190	85 673	6
31	315	61	497	91	679	1 0.6
32	321	62	503	92	685	2 1.2
33	327	63	509	93	691	3 1.8
34	333	64	516	94	697	4 2.4
35	85 339	65	85 522	95	85 703	5 3.0
36	345	66	528	96	709	6 3.6
37	352	67	534	97	715	7 4.2
38	358	68	540	98	721	8 4.8
39	364	69	546	99	727	9 5.4
7140	85 370	7170	85 552	7200	85 733	

7200

7200" = 2° 0' 0"		7230" = 2° 0' 30"		7260" = 2° 1' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
7200	85 733	7230	85 914	7260	86 094	6	
01	739	31	920	61	100	1	0·6
02	745	32	926	62	106	2	1·2
03	751	33	932	63	112	3	1·8
04	757	34	938	64	118	4	2·4
05	85 763	35	85 944	65	86 124	5	3·0
06	769	36	950	66	130	6	3·6
07	775	37	956	67	136	7	4·2
08	781	38	962	68	141	8	4·8
09	788	39	968	69	147	9	5·4
7210	85 794	7240	85 974	7270	86 153		
11	800	41	980	71	159		
12	806	42	986	72	165		
13	812	43	992	73	171		
14	818	44	998	74	177		
15	85 824	45	86 004	75	86 183		
16	830	46	010	76	189		
17	836	47	016	77	195		
18	842	48	022	78	201		
19	848	49	028	79	207		
7220	85 854	7250	86 034	7280	86 213	5	
21	860	51	040	81	219		
22	866	52	046	82	225	1	0·5
23	872	53	052	83	231	2	1·0
24	878	54	058	84	237	3	1·5
25	85 884	55	86 064	85	86 243	4	2·0
26	890	56	070	86	249	5	2·5
27	896	57	076	87	255	6	3·0
28	902	58	082	88	261	7	3·5
29	908	59	088	89	267	8	4·0
						9	4·5
7230	85 914	7260	86 094	7290	86 273		

7290

7290" = 2° 1' 30"		7320" = 2° 2' 0"		7350" = 2° 2' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
7290	86 273	7320	86 451	7350	86 629	6	
91	279	21	457	51	635	1	0.6
92	285	22	463	52	641	2	1.2
93	291	23	469	53	646	3	1.8
94	297	24	475	54	652	4	2.4
95	86 303	25	86 481	55	86 658	5	3.0
96	308	26	487	56	664	6	3.6
97	314	27	493	57	670	7	4.2
98	320	28	499	58	676	8	4.8
99	326	29	504	59	682	9	5.4
7300	86 332	7330	86 510	7360	86 688		
01	338	31	516	61	694		
02	344	32	522	62	700		
03	350	33	528	63	705		
04	356	34	534	64	711		
05	86 362	35	86 540	65	86 717		
06	368	36	546	66	723		
07	374	37	552	67	729		
08	380	38	558	68	735		
09	386	39	564	69	741		
7310	86 392	7340	86 570	7370	86 747	5	
11	398	41	576	71	753	1	0.5
12	404	42	581	72	759	2	1.0
13	410	43	587	73	764	3	1.5
14	415	44	593	74	770	4	2.0
15	86 421	45	86 599	75	86 776	5	2.5
16	427	46	605	76	782	6	3.0
17	433	47	611	77	788	7	3.5
18	439	48	617	78	794	8	4.0
19	445	49	623	79	800	9	4.5
7320	86 451	7350	86 629	7380	86 806		

7380

7380"=2° 3' 0"		7410"=2° 3' 30"		7440"=2° 4' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
7380	86 806	7410	86 982	7440	87 157	6	
81	812	11	988	41	163	1	0'6
82	817	12	994	42	169	2	1'2
83	823	13	999	43	175	3	1'8
84	829	14	87 005	44	181	4	2'4
85	86 835	15	87 011	45	87 186	5	3'0
86	841	16	017	46	192	6	3'6
87	847	17	023	47	198	7	4'2
88	853	18	029	48	204	8	4'8
89	859	19	035	49	210	9	5'4
7390	86 864	7420	87 040	7450	87 216		
91	870	21	046	51	221		
92	876	22	052	52	227		
93	882	23	058	53	233		
94	888	24	064	54	239		
95	86 894	25	87 070	55	87 245		
96	900	26	075	56	251		
97	906	27	081	57	256		
98	911	28	087	58	262		
99	917	29	093	59	268		
7400	86 923	7430	87 099	7460	87 274	5	
01	929	31	105	61	280	1	0'5
02	935	32	111	62	286	2	1'0
03	941	33	116	63	291	3	1'5
04	947	34	122	64	297	4	2'0
05	86 953	35	87 128	65	87 303	5	2'5
06	958	36	134	66	309	6	3'0
07	964	37	140	67	315	7	3'5
08	970	38	146	68	320	8	4'0
09	976	39	151	69	326	9	4'5
7410	86 982	7440	87 157	7470	87 332		

6570

6570" = 1° 49' 30"		6600" = 1° 50' 0"		6630" = 1° 50' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6570	81 757	6600	81 954	6630	82 151	7	
71	763	01	961	31	158	1	0.7
72	770	02	968	32	164	2	1.4
73	776	03	974	33	171	3	2.1
74	783	04	981	34	178	4	2.8
75	81 790	05	81 987	35	82 184	5	3.5
76	796	06	994	36	191	6	4.2
77	803	07	82 000	37	197	7	4.9
78	809	08	007	38	204	8	5.6
79	816	09	014	39	210	9	6.3
6580	81 823	6610	82 020	6640	82 217		
81	829	11	027	41	223		
82	836	12	033	42	230		
83	842	13	040	43	236		
84	849	14	046	44	243		
85	81 856	15	82 053	45	82 249		
86	862	16	060	46	256		
87	869	17	066	47	263		
88	875	18	073	48	269		
89	882	19	079	49	276		
6590	81 889	6620	82 086	6650	82 282	8	
91	895	21	092	51	289	1	0.6
92	902	22	099	52	295	2	1.2
93	908	23	105	53	302	3	1.8
94	915	24	112	54	308	4	2.4
95	81 921	25	82 119	55	82 315	5	3.0
96	928	26	125	56	321	6	3.6
97	935	27	132	57	328	7	4.2
98	941	28	138	58	334	8	4.8
99	948	29	145	59	341	9	5.4
6600	81 954	6630	82 151	6660	82 347		

6660

6660" = 1° 51' 0"		6690" = 1° 51' 30"		6720" = 1° 52' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
6660	82 347	6690	82 543	6720	82 737	7
61	354	91	549	21	743	1 0.7
62	360	92	556	22	750	2 1.4
63	367	93	562	23	756	3 2.1
64	373	94	569	24	763	4 2.8
65	82 380	95	82 575	25	82 769	5 3.5
66	387	96	582	26	776	6 4.2
67	393	97	588	27	782	7 4.9
68	400	98	595	28	789	8 5.6
69	406	99	601	29	795	9 6.3
6670	82 413	6700	82 607	6730	82 802	
71	419	01	614	31	808	
72	426	02	620	32	814	
73	432	03	627	33	821	
74	439	04	633	34	827	
75	82 445	05	82 640	35	82 834	
76	452	06	646	36	840	
77	458	07	653	37	847	
78	465	08	659	38	853	
79	471	09	666	39	860	
6680	82 478	6710	82 672	6740	82 866	6
81	484	11	679	41	872	1 0.6
82	491	12	685	42	879	2 1.2
83	497	13	692	43	885	3 1.8
84	504	14	698	44	892	4 2.4
85	82 510	15	82 705	45	82 898	5 3.0
86	517	16	711	46	905	6 3.6
87	523	17	718	47	911	7 4.2
88	530	18	724	48	918	8 4.8
89	536	19	730	49	924	9 5.4
6690	82 543	6720	82 737	6750	82 930	

6750

6750" = 1° 52' 30"		6780" = 1° 53' 0"		6810" = 1° 53' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
6750	82 930	6780	83 123	6810	83 315	7
51	937	81	129	11	321	1 0.7
52	943	82	136	12	327	2 1.4
53	950	83	142	13	334	3 2.1
54	956	84	149	14	340	4 2.8
55	82 963	85	83 155	15	83 347	5 3.5
56	969	86	161	16	353	6 4.2
57	975	87	168	17	359	7 4.9
58	982	88	174	18	366	8 5.6
59	988	89	181	19	372	9 6.3
6760	82 995	6790	83 187	6820	83 378	
61	83 001	91	193	21	385	
62	008	92	200	22	391	
63	014	93	206	23	398	
64	020	94	213	24	404	
65	83 027	95	83 219	25	83 410	
66	033	96	225	26	417	
67	040	97	232	27	423	
68	046	98	238	28	429	
69	052	99	245	29	436	
6770	83 059	6800	83 251	6830	83 442	6
71	065	01	257	31	448	
72	072	02	264	32	455	1 0.6
73	078	03	270	33	461	2 1.2
74	085	04	276	34	467	3 1.8
75	83 091	05	83 283	35	83 474	4 2.4
76	097	06	289	36	480	5 3.0
77	104	07	296	37	487	6 3.6
78	110	08	302	38	493	7 4.2
79	117	09	308	39	499	8 4.8
6780	83 123	6810	83 315	6840	83 506	9 5.4

6840

6840" = 1° 54' 0"		6870" = 1° 54' 30"		6900" = 1° 55' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6840	83 506	6870	83 696	6900	83 885	7	
41	512	71	702	01	891	1	0'7
42	518	72	708	02	897	2	1'4
43	525	73	715	03	904	3	2'1
44	531	74	721	04	910	4	2'8
45	83 537	75	83 727	05	83 916	5	3'5
46	544	76	734	06	923	6	4'2
47	550	77	740	07	929	7	4'9
48	556	78	746	08	935	8	5'6
49	563	79	753	09	942	9	6'3
6850	83 569	6880	83 759	6910	83 948		
51	575	81	765	11	954		
52	582	82	771	12	960		
53	588	83	778	13	967		
54	594	84	784	14	973		
55	83 601	85	83 790	15	83 979		
56	607	86	797	16	985		
57	613	87	803	17	992		
58	620	88	809	18	998		
59	626	89	816	19	84 004		
6860	83 632	6890	83 822	6920	84 011	6	
61	639	91	828	21	017	1	0'6
62	645	92	835	22	023	2	1'2
63	651	93	841	23	029	3	1'8
64	658	94	847	24	036	4	2'4
65	83 664	95	83 853	25	84 042	5	3'0
66	670	96	860	26	048	6	3'6
67	677	97	866	27	055	7	4'2
68	683	98	872	28	061	8	4'8
69	689	99	879	29	067	9	5'4
6870	83 696	6900	83 885	6930	84 073		

6930

6930" = 1° 55' 30"		6960" = 1° 56' 0"		6990" = 1° 56' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
6930	84 073	6960	84 261	6990	84 448	7	
31	080	61	267	91	454	1	0·7
32	086	62	273	92	460	2	1·4
33	092	63	280	93	466	3	2·1
34	098	64	286	94	473	4	2·8
35	84 105	65	84 292	95	84 479	5	3·5
36	111	66	298	96	485	6	4·2
37	117	67	305	97	491	7	4·9
38	123	68	311	98	497	8	5·6
39	130	69	317	99	504	9	6·3
6940	84 136	6970	84 323	7000	84 510	6	
41	142	71	330	01	516		
42	148	72	336	02	522		
43	155	73	342	03	528		
44	161	74	348	04	535		
45	84 167	75	84 354	05	84 541		
46	173	76	361	06	547		
47	180	77	367	07	553		
48	186	78	373	08	559		
49	192	79	379	09	566		
6950	84 198	6980	84 386	7010	84 572	5	
51	205	81	392	11	578		
52	211	82	398	12	584		
53	217	83	404	13	590		
54	223	84	410	14	597		
55	84 230	85	84 417	15	84 603		
56	236	86	423	16	609		
57	242	87	429	17	615		
58	248	88	435	18	621		
59	255	89	442	19	628		
6960	84 261	6990	84 448	7020	84 634		

7020

7020" = 1° 57' 0"		7050" = 1° 57' 30"		7080" = 1° 58' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
7020	84 634	7050	84 819	7080	85 003	7
21	640	51	825	81	009	1 0.7
22	646	52	831	82	016	2 1.4
23	652	53	837	83	022	3 2.1
24	658	54	844	84	028	4 2.8
25	84 665	55	84 850	85	85 034	5 3.5
26	671	56	856	86	040	6 4.2
27	677	57	862	87	046	7 4.9
28	683	58	868	88	052	8 5.6
29	689	59	874	89	058	9 6.3
7030	84 696	7060	84 880	7090	85 065	
31	702	61	887	91	071	
32	708	62	893	92	077	
33	714	63	899	93	083	
34	720	64	905	94	089	
35	84 726	65	84 911	95	85 095	
36	733	66	917	96	101	
37	739	67	924	97	107	
38	745	68	930	98	114	
39	751	69	936	99	120	
7040	84 757	7070	84 942	7100	85 126	6
41	763	71	948	01	132	
42	770	72	954	02	138	1 0.6
43	776	73	960	03	144	2 1.2
44	782	74	967	04	150	3 1.8
45	84 788	75	84 973	05	85 156	4 2.4
46	794	76	979	06	163	5 3.0
47	800	77	985	07	169	6 3.6
48	807	78	991	08	175	7 4.2
49	813	79	997	09	181	8 4.8
7050	84 819	7080	85 003	7110	85 187	9 5.4

7110

7110° = 1° 58' 30"		7140° = 1° 59' 0"		7170° = 1° 59' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
7110	85 187	7140	85 370	7170	85 552	7	
11	193	41	376	71	558	1	0.7
12	199	42	382	72	564	2	1.4
13	205	43	388	73	570	3	2.1
14	211	44	394	74	576	4	2.8
15	85 217	45	85 400	75	85 582	5	3.5
16	224	46	406	76	588	6	4.2
17	230	47	412	77	594	7	4.9
18	236	48	418	78	600	8	5.6
19	242	49	425	79	606	9	6.3
7120	85 248	7150	85 431	7180	85 612		
21	254	51	437	81	618		
22	260	52	443	82	625		
23	266	53	449	83	631		
24	272	54	455	84	637		
25	85 278	55	85 461	85	85 643		
26	285	56	467	86	649		
27	291	57	473	87	655		
28	297	58	479	88	661		
29	303	59	485	89	667		
7130	85 309	7160	85 491	7190	85 673	6	
31	315	61	497	91	679	1	0.6
32	321	62	503	92	685	2	1.2
33	327	63	509	93	691	3	1.8
34	333	64	516	94	697	4	2.4
35	85 339	65	85 522	95	85 703	5	3.0
36	345	66	528	96	709	6	3.6
37	352	67	534	97	715	7	4.2
38	358	68	540	98	721	8	4.8
39	364	69	546	99	727	9	5.4
7140	85 370	7170	85 552	7200	85 733		

7200

7200" = 2° 0' 0"		7230" = 2° 0' 30"		7260" = 2° 1' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
7200	85 733	7230	85 914	7260	86 094	6
01	739	31	920	61	100	1 0.6
02	745	32	926	62	106	2 1.2
03	751	33	932	63	112	3 1.8
04	757	34	938	64	118	4 2.4
05	85 763	35	85 944	65	86 124	5 3.0
06	769	36	950	66	130	6 3.6
07	775	37	956	67	136	7 4.2
08	781	38	962	68	141	8 4.8
09	788	39	968	69	147	9 5.4
7210	85 794	7240	85 974	7270	86 153	
11	800	41	980	71	159	
12	806	42	986	72	165	
13	812	43	992	73	171	
14	818	44	998	74	177	
15	85 824	45	86 004	75	86 183	
16	830	46	010	76	189	
17	836	47	016	77	195	
18	842	48	022	78	201	
19	848	49	028	79	207	
7220	85 854	7250	86 034	7280	86 213	5
21	860	51	040	81	219	1 0.5
22	866	52	046	82	225	2 1.0
23	872	53	052	83	231	3 1.5
24	878	54	058	84	237	4 2.0
25	85 884	55	86 064	85	86 243	5 2.5
26	890	56	070	86	249	6 3.0
27	896	57	076	87	255	7 3.5
28	902	58	082	88	261	8 4.0
29	908	59	088	89	267	9 4.5
7230	85 914	7260	86 094	7290	86 273	

7290

7290" = 2° 1' 30"		7320" = 2° 2' 0"		7350" = 2° 2' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
7290	86 273	7320	86 451	7350	86 629	6
91	279	21	457	51	635	1 0.6
92	285	22	463	52	641	2 1.2
93	291	23	469	53	646	3 1.8
94	297	24	475	54	652	4 2.4
95	86 303	25	86 481	55	86 658	5 3.0
96	308	26	487	56	664	6 3.6
97	314	27	493	57	670	7 4.2
98	320	28	499	58	676	8 4.8
99	326	29	504	59	682	9 5.4
7300	86 332	7330	86 510	7360	86 688	
01	338	31	516	61	694	
02	344	32	522	62	700	
03	350	33	528	63	705	
04	356	34	534	64	711	
05	86 362	35	86 540	65	86 717	
06	368	36	546	66	723	
07	374	37	552	67	729	
08	380	38	558	68	735	
09	386	39	564	69	741	
7310	86 392	7340	86 570	7370	86 747	5
11	398	41	576	71	753	1 0.5
12	404	42	581	72	759	2 1.0
13	410	43	587	73	764	3 1.5
14	415	44	593	74	770	4 2.0
15	86 421	45	86 599	75	86 776	5 2.5
16	427	46	605	76	782	6 3.0
17	433	47	611	77	788	7 3.5
18	439	48	617	78	794	8 4.0
19	445	49	623	79	800	9 4.5
7320	86 451	7350	86 629	7380	86 806	

7380

7380" = 2° 3' 0"		7410" = 2° 3' 30"		7440" = 2° 4' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
7380	86 806	7410	86 982	7440	87 157	6
81	812	11	988	41	163	1 0.6
82	817	12	994	42	169	2 1.2
83	823	13	999	43	175	3 1.8
84	829	14	87 005	44	181	4 2.4
85	86 835	15	87 011	45	87 186	5 3.0
86	841	16	017	46	192	6 3.6
87	847	17	023	47	198	7 4.2
88	853	18	029	48	204	8 4.8
89	859	19	035	49	210	9 5.4
7390	86 864	7420	87 040	7450	87 216	
91	870	21	046	51	221	
92	876	22	052	52	227	
93	882	23	058	53	233	
94	888	24	064	54	239	
95	86 894	25	87 070	55	87 245	
96	900	26	075	56	251	
97	906	27	081	57	256	
98	911	28	087	58	262	
99	917	29	093	59	268	
7400	86 923	7430	87 099	7460	87 274	5
01	929	31	105	61	280	1 0.5
02	935	32	111	62	286	2 1.0
03	941	33	116	63	291	3 1.5
04	947	34	122	64	297	4 2.0
05	86 953	35	87 128	65	87 303	5 2.5
06	958	36	134	66	309	6 3.0
07	964	37	140	67	315	7 3.5
08	970	38	146	68	320	8 4.0
09	976	39	151	69	326	9 4.5
7410	86 982	7440	87 157	7470	87 332	

7470

7470" = 2° 4' 30"		7500" = 2° 5' 0"		7530" = 2° 5' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
7470	87 332	7500	87 506	7530	87 679	6	
71	338	01	512	31	685	1	0.6
72	344	02	518	32	691	2	1.2
73	349	03	523	33	697	3	1.8
74	355	04	529	34	703	4	2.4
75	87 361	05	87 535	35	87 708	5	3.0
76	367	06	541	36	714	6	3.6
77	373	07	547	37	720	7	4.2
78	379	08	552	38	726	8	4.8
79	384	09	558	39	731	9	5.4
7480	87 390	7510	87 564	7540	87 737		
81	396	11	570	41	743		
82	402	12	576	42	749		
83	408	13	581	43	754		
84	413	14	587	44	760		
85	87 419	15	87 593	45	87 766		
86	425	16	599	46	772		
87	431	17	604	47	777		
88	437	18	610	48	783		
89	442	19	616	49	789		
7490	87 448	7520	87 622	7550	87 795	5	
91	454	21	628	51	800		
92	460	22	633	52	806	1	0.5
93	466	23	639	53	812	2	1.0
94	471	24	645	54	818	3	1.5
95	87 477	25	87 651	55	87 823	4	2.0
96	483	26	656	56	829	5	2.5
97	489	27	662	57	835	6	3.0
98	495	28	668	58	841	7	3.5
99	500	29	674	59	846	8	4.0
7500	87 506	7530	87 679	7560	87 852	9	4.5

7560

7560" = 2° 6' 0"		7590" = 2° 6' 30"		7620" = 2° 7' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
7560	87 852	7590	88 024	7620	88 195	6	
61	858	91	030	21	201	1	0·6
62	864	92	036	22	207	2	1·2
63	869	93	041	23	213	3	1·8
64	875	94	047	24	218	4	2·4
65	87 881	95	88 053	25	88 224	5	3·0
66	887	96	058	26	230	6	3·6
67	892	97	064	27	235	7	4·2
68	898	98	070	28	241	8	4·8
69	904	99	076	29	247	9	5·4
7570	87 910	7600	88 081	7630	88 252		
71	915	01	087	31	258		
72	921	02	093	32	264		
73	927	03	098	33	270		
74	933	04	104	34	275		
75	87 938	05	88 110	35	88 281		
76	944	06	116	36	287		
77	950	07	121	37	292		
78	955	08	127	38	298		
79	961	09	133	39	304		
7580	87 967	7610	88 138	7640	88 309	5	
81	973	11	144	41	315		
82	978	12	150	42	321	1	0·5
83	984	13	156	43	326	2	1·0
84	990	14	161	44	332	3	1·5
85	87 996	15	88 167	45	88 338	4	2·0
86	88 001	16	173	46	343	5	2·5
87	007	17	178	47	349	6	3·0
88	013	18	184	48	355	7	3·5
89	018	19	190	49	360	8	4·0
7590	88 024	7620	88 195	7650	88 366	9	4·5

7650

7650" = 2° 7' 30"		7680" = 2° 8' 0"		7710" = 2° 8' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
7650	88 366	7680	88 536	7710	88 705	6	
51	372	81	542	11	711	1	0.6
52	377	82	547	12	717	2	1.2
53	383	83	553	13	722	3	1.8
54	389	84	559	14	728	4	2.4
55	88 395	85	88 564	15	88 734	5	3.0
56	400	86	570	16	739	6	3.6
57	406	87	576	17	745	7	4.2
58	412	88	581	18	750	8	4.8
59	417	89	587	19	756	9	5.4
7660	88 423	7690	88 593	7720	88 762		
61	429	91	598	21	767		
62	434	92	604	22	773		
63	440	93	610	23	779		
64	446	94	615	24	784		
65	88 451	95	88 621	25	88 790		
66	457	96	627	26	795		
67	463	97	632	27	801		
68	468	98	638	28	807		
69	474	99	643	29	812		
7670	88 480	7700	88 649	7730	88 818	5	
71	485	01	655	31	824	1	0.5
72	491	02	660	32	829	2	1.0
73	497	03	666	33	835	3	1.5
74	502	04	672	34	840	4	2.0
75	88 508	05	88 677	35	88 846	5	2.5
76	513	06	683	36	852	6	3.0
77	519	07	689	37	857	7	3.5
78	525	08	694	38	863	8	4.0
79	530	09	700	39	868	9	4.5
7680	88 536	7710	88 705	7740	88 874		

7740

7740" = 2° 9' 0"		7770" = 2° 9' 30"		7800" = 2° 10' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
7740	88 874	7770	89 042	7800	89 209	6	
41	880	71	048	01	215	1	0.6
42	885	72	053	02	221	2	1.2
43	891	73	059	03	226	3	1.8
44	897	74	064	04	232	4	2.4
45	88 902	75	89 070	05	89 237	5	3.0
46	908	76	076	06	243	6	3.6
47	913	77	081	07	248	7	4.2
48	919	78	087	08	254	8	4.8
49	925	79	092	09	260	9	5.4
7750	88 930	7780	89 098	7810	89 265		
51	936	81	104	11	271		
52	941	82	109	12	276		
53	947	83	115	13	282		
54	953	84	120	14	287		
55	88 958	85	89 126	15	89 293		
56	964	86	131	16	298		
57	969	87	137	17	304		
58	975	88	143	18	310		
59	981	89	148	19	315		
7760	88 986	7790	89 154	7820	89 321	5	
61	992	91	159	21	326		
62	997	92	165	22	332	1	0.5
63	89 003	93	170	23	337	2	1.0
64	009	94	176	24	343	3	1.5
65	89 014	95	89 182	25	89 348	4	2.0
66	020	96	187	26	354	5	2.5
67	025	97	193	27	360	6	3.0
68	031	98	198	28	365	7	3.5
69	037	99	204	29	371	8	4.0
7770	89 042	7800	89 209	7830	89 376	9	4.5

7830

7830°=2° 10' 30"		7860°=2° 11' 0"		7890°=2° 11' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
7830	89 376	7860	89 542	7890	89 708	6	
31	382	61	548	91	713	1	0'6
32	387	62	553	92	719	2	1'2
33	393	63	559	93	724	3	1'8
34	398	64	564	94	730	4	2'4
35	89 404	65	89 570	95	89 735	5	3'0
36	409	66	575	96	741	6	3'6
37	415	67	581	97	746	7	4'2
38	421	68	586	98	752	8	4'8
39	426	69	592	99	757	9	5'4
7840	89 432	7870	89 597	7900	89 763		
41	437	71	603	01	768		
42	443	72	609	02	774		
43	448	73	614	03	779		
44	454	74	620	04	785		
45	89 459	75	89 625	05	89 790		
46	465	76	631	06	796		
47	470	77	636	07	801		
48	476	78	642	08	807		
49	481	79	647	09	812		
7850	89 487	7880	89 653	7910	89 818	5	
51	492	81	658	11	823		
52	498	82	664	12	829	1	0'5
53	504	83	669	13	834	2	1'0
54	509	84	675	14	840	3	1'5
55	89 515	85	89 680	15	89 845	4	2'0
56	520	86	686	16	851	5	2'5
57	526	87	691	17	856	6	3'0
58	531	88	697	18	862	7	3'5
59	537	89	702	19	867	8	4'0
7860	89 542	7890	89 708	7920	89 873	9	4'5

7920

7920" = 2° 12' 0"		7950" = 2° 12' 30"		7980" = 2° 13' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
7920	89 873	7950	90 037	7980	90 100	6	
21	878	51	042	81	106	1	0.6
22	883	52	048	82	211	2	1.2
23	889	53	053	83	217	3	1.8
24	894	54	059	84	222	4	2.4
25	89 900	55	90 064	85	90 227	5	3.0
26	905	56	069	86	233	6	3.6
27	911	57	075	87	238	7	4.2
28	916	58	080	88	244	8	4.8
29	922	59	086	89	249	9	5.4
7930	89 927	7960	90 091	7990	90 255		
31	933	61	097	91	260		
32	938	62	102	92	266		
33	944	63	108	93	271		
34	949	64	113	94	276		
35	89 955	65	90 119	95	90 282		
36	960	66	124	96	287		
37	966	67	129	97	293		
38	971	68	135	98	298		
39	977	69	140	99	304		
7940	89 982	7970	90 146	8000	90 309	5	
41	988	71	151	01	314	1	0.5
42	993	72	157	02	320	2	1.0
43	998	73	162	03	325	3	1.5
44	90 004	74	168	04	331	4	2.0
45	90 009	75	90 173	05	90 336	5	2.5
46	015	76	179	06	342	6	3.0
47	020	77	184	07	347	7	3.5
48	026	78	189	08	352	8	4.0
49	031	79	195	09	358	9	4.5
7950	90 037	7980	90 200	8010	90 363		

8010

8010" = 2° 13' 30"		8040" = 2° 14' 0"		8070" = 2° 14' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
8010	90 363	8040	90 526	8070	90 687	6
11	369	41	531	71	693	1 0.6
12	374	42	536	72	698	2 1.2
13	380	43	542	73	703	3 1.8
14	385	44	547	74	709	4 2.4
15	90 390	45	90 553	75	90 714	5 3.0
16	396	46	558	76	720	6 3.6
17	401	47	563	77	725	7 4.2
18	407	48	569	78	730	8 4.8
19	412	49	574	79	736	9 5.4
8020	90 417	8050	90 580	8080	90 741	
21	423	51	585	81	747	
22	428	52	590	82	752	
23	434	53	596	83	757	
24	439	54	601	84	763	
25	90 445	55	90 607	85	90 768	
26	450	56	612	86	773	
27	455	57	617	87	779	
28	461	58	623	88	784	
29	466	59	628	89	789	
8030	90 472	8060	90 634	8090	90 795	8
31	477	61	639	91	800	
32	482	62	644	92	806	1 0.5
33	488	63	650	93	811	2 1.0
34	493	64	655	94	816	3 1.5
35	90 499	65	90 660	95	90 822	4 2.0
36	504	66	666	96	827	5 2.5
37	509	67	671	97	832	6 3.0
38	515	68	677	98	838	7 3.5
39	520	69	682	99	843	8 4.0
8040	90 526	8070	90 687	8100	90 849	9 4.5

8100"=2° 15' 0"		8130"=2° 15' 30"		8160"=2° 16' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
8100	90 849	8130	91 009	8160	91 169	6	
01	854	31	014	61	174	1	0'6
02	859	32	020	62	180	2	1'2
03	865	33	025	63	185	3	1'8
04	870	34	030	64	190	4	2'4
05	90 875	35	91 036	65	91 196	5	3'0
06	881	36	041	66	201	6	3'6
07	886	37	046	67	206	7	4'2
08	891	38	052	68	212	8	4'8
09	897	39	057	69	217	9	5'4
8110	90 902	8140	91 062	8170	91 222		
11	907	41	068	71	228		
12	913	42	073	72	233		
13	918	43	078	73	238		
14	924	44	084	74	243		
15	90 929	45	91 089	75	91 249		
16	934	46	094	76	254		
17	940	47	100	77	259		
18	945	48	105	78	265		
19	950	49	110	79	270		
8120	90 956	8150	91 116	8180	91 275	5	
21	961	51	121	81	281		
22	966	52	126	82	286	1	0'5
23	972	53	132	83	291	2	1'0
24	977	54	137	84	297	3	1'5
25	90 982	55	91 142	85	91 302	4	2'0
26	988	56	148	86	307	5	2'5
27	993	57	153	87	312	6	3'0
28	998	58	158	88	318	7	3'5
29	91 004	59	164	89	323	8	4'0
						9	4'5
8130	91 009	8160	91 169	8190	91 328		

8190

8190" = 2° 16' 30"		8220" = 2° 17' 0"		8250" = 2° 17' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
8190	91 328	8220	91 487	8250	91 645	6
91	334	21	492	51	651	1 0.6
92	339	22	498	52	656	2 1.2
93	344	23	503	53	661	3 1.8
94	350	24	508	54	666	4 2.4
95	91 355	25	91 514	55	91 672	5 3.0
96	360	26	519	56	677	6 3.6
97	365	27	524	57	682	7 4.2
98	371	28	529	58	687	8 4.8
99	376	29	535	59	693	9 5.4
8200	91 381	8230	91 540	8260	91 698	
01	387	31	545	61	703	
02	392	32	551	62	709	
03	397	33	556	63	714	
04	403	34	561	64	719	
05	91 408	35	91 566	65	91 724	
06	413	36	572	66	730	
07	418	37	577	67	735	
08	424	38	582	68	740	
09	429	39	587	69	745	
8210	91 434	8240	91 593	8270	91 751	5
11	440	41	598	71	756	
12	445	42	603	72	761	1 0.5
13	450	43	609	73	766	2 1.0
14	455	44	614	74	772	3 1.5
15	91 461	45	91 619	75	91 777	4 2.0
16	466	46	624	76	782	5 2.5
17	471	47	630	77	787	6 3.0
18	477	48	635	78	793	7 3.5
19	482	49	640	79	798	8 4.0
8220	91 487	8250	91 645	8280	91 803	9 4.5

8280

8280" = 2° 18' 0"		8310" = 2° 18' 30"		8340" = 2° 19' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
8280	91 803	8310	91 960	8340	92 117	6	
81	808	11	965	41	122	1	0·6
82	814	12	971	42	127	2	1·2
83	819	13	976	43	132	3	1·8
84	824	14	981	44	137	4	2·4
85	91 829	15	91 986	45	92 143	5	3·0
86	834	16	991	46	148	6	3·6
87	840	17	997	47	153	7	4·2
88	845	18	92 002	48	158	8	4·8
89	850	19	007	49	163	9	5·4
8290	91 855	8320	92 012	8350	92 169		
91	861	21	018	51	174		
92	866	22	023	52	179		
93	871	23	028	53	184		
94	876	24	033	54	189		
95	91 882	25	92 038	55	92 195		
96	887	26	044	56	200		
97	892	27	049	57	205		
98	897	28	054	58	210		
99	903	29	059	59	215		
8300	91 908	8330	92 065	8360	92 221	5	
01	913	31	070	61	226	1	0·5
02	918	32	075	62	231	2	1·0
03	924	33	080	63	236	3	1·5
04	929	34	085	64	241	4	2·0
05	91 934	35	92 091	65	92 247	5	2·5
06	939	36	096	66	252	6	3·0
07	944	37	101	67	257	7	3·5
08	950	38	106	68	262	8	4·0
09	955	39	111	69	267	9	4·5
8310	91 960	8340	92 117	8370	92 273		

8370

8370"=2° 19' 30"		8400"=2° 20' 0"		8430"=2° 20' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
8370	92 273	8400	92 428	8430	92 583	6	
71	278	01	433	31	588	1	0.6
72	283	02	438	32	593	2	1.2
73	288	03	443	33	598	3	1.8
74	293	04	449	34	603	4	2.4
75	92 298	05	92 454	35	92 609	5	3.0
76	304	06	459	36	614	6	3.6
77	309	07	464	37	619	7	4.2
78	314	08	469	38	624	8	4.8
79	319	09	474	39	629	9	5.4
8380	92 324	8410	92 480	8440	92 634		
81	330	11	485	41	639		
82	335	12	490	42	645		
83	340	13	495	43	650		
84	345	14	500	44	655		
85	92 350	15	92 505	45	92 660		
86	355	16	511	46	665		
87	361	17	516	47	670		
88	366	18	521	48	675		
89	371	19	526	49	681		
8390	92 376	8420	92 531	8450	92 686	5	
91	381	21	536	51	691	1	0.5
92	387	22	542	52	696	2	1.0
93	392	23	547	53	701	3	1.5
94	397	24	552	54	706	4	2.0
95	92 402	25	92 557	55	92 711	5	2.5
96	407	26	562	56	716	6	3.0
97	412	27	567	57	722	7	3.5
98	418	28	572	58	727	8	4.0
99	423	29	578	59	732	9	4.5
8400	92 428	8430	92 583	8460	92 737		

8460

8460" = 2° 21' 0"		8490" = 2° 21' 30"		8520" = 2° 22' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
8460	92 737	8490	92 891	8520	93 044	6	
61	742	91	896	21	049	1	0.6
62	747	92	901	22	054	2	1.2
63	752	93	906	23	059	3	1.8
64	758	94	911	24	064	4	2.4
65	92 763	95	92 916	25	93 069	5	3.0
66	768	96	921	26	075	6	3.6
67	773	97	927	27	080	7	4.2
68	778	98	932	28	085	8	4.8
69	783	99	937	29	090	9	5.4
8470	92 788	8500	92 942	8530	93 095		
71	793	01	947	31	100		
72	799	02	952	32	105		
73	804	03	957	33	110		
74	809	04	962	34	115		
75	92 814	05	92 967	35	93 120		
76	819	06	973	36	125		
77	824	07	978	37	131		
78	829	08	983	38	136		
79	834	09	988	39	141		
8480	92 840	8510	92 993	8540	93 146	5	
81	845	11	998	41	151	1	0.5
82	850	12	93 003	42	156	2	1.0
83	855	13	008	43	161	3	1.5
84	860	14	013	44	166	4	2.0
85	92 865	15	93 018	45	93 171	5	2.5
86	870	16	024	46	176	6	3.0
87	875	17	029	47	181	7	3.5
88	881	18	034	48	186	8	4.0
89	886	19	039	49	192	9	4.5
8490	92 891	8520	93 044	8550	93 197		

8550

8550" = 2° 22' 30"		8580" = 2° 23' 0"		8610" = 2° 23' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
8550	93 197	8580	93 349	8610	93 500	6
51	202	81	354	11	505	1 0.6
52	207	82	359	12	510	2 1.2
53	212	83	364	13	515	3 1.8
54	217	84	369	14	520	4 2.4
55	93 222	85	93 374	15	93 526	5 3.0
56	227	86	379	16	531	6 3.6
57	232	87	384	17	536	7 4.2
58	237	88	389	18	541	8 4.8
59	242	89	394	19	546	9 5.4
8560	93 247	8590	93 399	8620	93 551	
61	252	91	404	21	556	
62	258	92	409	22	561	
63	263	93	414	23	566	
64	268	94	420	24	571	
65	93 273	95	93 425	25	93 576	
66	278	96	430	26	581	
67	283	97	435	27	586	
68	288	98	440	28	591	
69	293	99	445	29	596	
8570	93 298	8600	93 450	8630	93 601	5
71	303	01	455	31	606	1 0.5
72	308	02	460	32	611	2 1.0
73	313	03	465	33	616	3 1.5
74	318	04	470	34	621	4 2.0
75	93 323	05	93 475	35	93 626	5 2.5
76	328	06	480	36	631	6 3.0
77	334	07	485	37	636	7 3.5
78	339	08	490	38	641	8 4.0
79	344	09	495	39	646	9 4.5
8580	93 349	8610	93 500	8640	93 651	

8640

8640" = 2° 24' 0"		8670" = 2° 24' 30"		8700" = 2° 25' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
8640	93 651	8670	93 802	8700	93 952	5	
41	656	71	807	01	957	1	0.5
42	661	72	812	02	962	2	1.0
43	666	73	817	03	967	3	1.5
44	671	74	822	04	972	4	2.0
45	93 676	75	93 827	05	93 977	5	2.5
46	682	76	832	06	982	6	3.0
47	687	77	837	07	987	7	3.5
48	692	78	842	08	992	8	4.0
49	697	79	847	09	997	9	4.5
8650	93 702	8680	93 852	8710	94 002		
51	707	81	857	11	007		
52	712	82	862	12	012		
53	717	83	867	13	017		
54	722	84	872	14	022		
55	93 727	85	93 877	15	94 027		
56	732	86	882	16	032		
57	737	87	887	17	037		
58	742	88	892	18	042		
59	747	89	897	19	047		
8660	93 752	8690	93 902	8720	94 052	4	
61	757	91	907	21	057	1	0.4
62	762	92	912	22	062	2	0.8
63	767	93	917	23	067	3	1.2
64	772	94	922	24	072	4	1.6
65	93 777	95	93 927	25	94 077	5	2.0
66	782	96	932	26	082	6	2.4
67	787	97	937	27	086	7	2.8
68	792	98	942	28	091	8	3.2
69	797	99	947	29	096	9	3.6
8670	93 802	8700	93 952	8730	94 101		

8730

8730" = 2° 25' 30"		8760" = 2° 26' 0"		8790" = 2° 26' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
8730	94 101	8760	94 250	8790	94 399	5
31	106	61	255	91	404	1 0.5
32	111	62	260	92	409	2 1.0
33	116	63	265	93	414	3 1.5
34	121	64	270	94	419	4 2.0
35	94 126	65	94 275	95	94 424	5 2.5
36	131	66	280	96	429	6 3.0
37	136	67	285	97	433	7 3.5
38	141	68	290	98	438	8 4.0
39	146	69	295	99	443	9 4.5
8740	94 151	8770	94 300	8800	94 448	
41	156	71	305	01	453	
42	161	72	310	02	458	
43	166	73	315	03	463	
44	171	74	320	04	468	
45	94 176	75	94 325	05	94 473	
46	181	76	330	06	478	
47	186	77	335	07	483	
48	191	78	340	08	488	
49	196	79	345	09	493	
8750	94 201	8780	94 349	8810	94 498	4
51	206	81	354	11	503	
52	211	82	359	12	507	1 0.4
53	216	83	364	13	512	2 0.8
54	221	84	369	14	517	3 1.2
55	94 226	85	94 374	15	94 522	4 1.6
56	231	86	379	16	527	5 2.0
57	236	87	384	17	532	6 2.4
58	240	88	389	18	537	7 2.8
59	245	89	394	19	542	8 3.2
8760	94 250	8790	94 399	8820	94 547	9 3.6

8820

8820" = 2° 27' 0"		8850" = 2° 27' 30"		8880" = 2° 28' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
8820	94 547	8850	94 694	8880	94 841	5
21	552	51	699	81	846	1 0.5
22	557	52	704	82	851	2 1.0
23	562	53	709	83	856	3 1.5
24	567	54	714	84	861	4 2.0
25	94 571	55	94 719	85	94 866	5 2.5
26	576	56	724	86	871	6 3.0
27	581	57	729	87	876	7 3.5
28	586	58	734	88	880	8 4.0
29	591	59	738	89	885	9 4.5
8830	94 596	8860	94 743	8890	94 890	
31	601	61	748	91	895	
32	606	62	753	92	900	
33	611	63	758	93	905	
34	616	64	763	94	910	
35	94 621	65	94 768	95	94 915	
36	626	66	773	96	919	
37	630	67	778	97	924	
38	635	68	783	98	929	
39	640	69	787	99	934	
8840	94 645	8870	94 792	8900	94 939	4
41	650	71	797	01	944	
42	655	72	802	02	949	1 0.4
43	660	73	807	03	954	2 0.8
44	665	74	812	04	959	3 1.2
45	94 670	75	94 817	05	94 963	4 1.6
46	675	76	822	06	968	5 2.0
47	680	77	827	07	973	6 2.4
48	685	78	832	08	978	7 2.8
49	689	79	836	09	983	8 3.2
8850	94 694	8880	94 841	8910	94 988	9 3.6

8910

8910" = 2° 28' 30"		8940" = 2° 29' 0"		8970" = 2° 29' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
8910	94 988	8940	95 134	8970	95 279	5	
11	993	41	139	71	284	1	0'5
12	998	42	143	72	289	2	1'0
13	95 002	43	148	73	294	3	1'5
14	007	44	153	74	299	4	2'0
15	95 012	45	95 158	75	95 303	5	2'5
16	017	46	163	76	308	6	3'0
17	022	47	168	77	313	7	3'5
18	027	48	173	78	318	8	4'0
19	032	49	177	79	323	9	4'5
8920	95 036	8950	95 182	8980	95 328		
21	041	51	187	81	332		
22	046	52	192	82	337		
23	051	53	197	83	342		
24	056	54	202	84	347		
25	95 061	55	95 207	85	95 352		
26	066	56	211	86	357		
27	071	57	216	87	361		
28	075	58	221	88	366		
29	080	59	226	89	371		
8930	95 085	8960	95 231	8990	95 376	4	
31	090	61	236	91	381	1	0'4
32	095	62	240	92	386	2	0'8
33	100	63	245	93	390	3	1'2
34	105	64	250	94	395	4	1'6
35	95 109	65	95 255	95	95 400	5	2'0
36	114	66	260	96	405	6	2'4
37	119	67	265	97	410	7	2'8
38	124	68	270	98	415	8	3'2
39	129	69	274	99	419	9	3'6
8940	95 134	8970	95 279	9000	95 424		

9000

9000" = 2° 30' 0"		9030" = 2° 30' 30"		9060" = 2° 31' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
9000	95 424	9030	95 569	9060	95 713	8	
01	429	31	574	61	718	1	0'5
02	434	32	578	62	722	2	1'0
03	439	33	583	63	727	3	1'5
04	444	34	588	64	732	4	2'0
05	95 448	35	95 593	65	95 737	5	2'5
06	453	36	598	66	742	6	3'0
07	458	37	602	67	746	7	3'5
08	463	38	607	68	751	8	4'0
09	468	39	612	69	756	9	4'5
9010	95 472	9040	95 617	9070	95 761		
11	477	41	622	71	766		
12	482	42	626	72	770		
13	487	43	631	73	775		
14	492	44	636	74	780		
15	95 497	45	95 641	75	95 785		
16	501	46	646	76	789		
17	506	47	650	77	794		
18	511	48	655	78	799		
19	516	49	660	79	804		
9020	95 521	9050	95 665	9080	95 809	4	
21	525	51	670	81	813		
22	530	52	674	82	818	1	0'4
23	535	53	679	83	823	2	0'8
24	540	54	684	84	828	3	1'2
25	95 545	55	95 689	85	95 832	4	1'6
26	550	56	694	86	837	5	2'0
27	554	57	698	87	842	6	2'4
28	559	58	703	88	847	7	2'8
29	564	59	708	89	852	8	3'2
9030	95 569	9060	95 713	9090	95 856	9	3'6

9090

9090" = 2° 31' 30"		9120" = 2° 32' 0"		9150" = 2° 32' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
9090	95 856	9120	95 999	9150	96 142	5
91	861	21	96 004	51	147	1 0'5
92	866	22	009	52	152	2 1'0
93	871	23	014	53	156	3 1'5
94	875	24	019	54	161	4 2'0
95	95 880	25	96 023	55	96 166	5 2'5
96	885	26	028	56	171	6 3'0
97	890	27	033	57	175	7 3'5
98	895	28	038	58	180	8 4'0
99	899	29	042	59	185	9 4'5
9100	95 904	9130	96 047	9160	96 190	
01	909	31	052	61	194	
02	914	32	057	62	199	
03	918	33	061	63	204	
04	923	34	066	64	209	
05	95 928	35	96 071	65	96 213	
06	933	36	076	66	218	
07	938	37	080	67	223	
08	942	38	085	68	227	
09	947	39	090	69	232	
9110	95 952	9140	96 095	9170	96 237	4
11	957	41	099	71	242	1 0'4
12	961	42	104	72	246	2 0'8
13	966	43	109	73	251	3 1'2
14	971	44	114	74	256	4 1'6
15	95 976	45	96 118	75	96 261	5 2'0
16	980	46	123	76	265	6 2'4
17	985	47	128	77	270	7 2'8
18	990	48	133	78	275	8 3'2
19	995	49	137	79	280	9 3'6
9120	95 999	9150	96 142	9180	96 284	

9180

9180"=2° 33' 0"		9210"=2° 33' 30"		9240"=2° 34' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
9180	96 284	9210	96 426	9240	96 567	5	
81	289	11	431	41	572	1	0.5
82	294	12	435	42	577	2	1.0
83	298	13	440	43	581	3	1.5
84	303	14	445	44	586	4	2.0
85	96 308	15	96 450	45	96 591	5	2.5
86	313	16	454	46	595	6	3.0
87	317	17	459	47	600	7	3.5
88	322	18	464	48	605	8	4.0
89	327	19	468	49	609	9	4.5
9190	96 332	9220	96 473	9250	96 614		
91	336	21	478	51	619		
92	341	22	483	52	624		
93	346	23	487	53	628		
94	350	24	492	54	633		
95	96 355	25	96 497	55	96 638		
96	360	26	501	56	642		
97	365	27	506	57	647		
98	369	28	511	58	652		
99	374	29	515	59	656		
9200	96 379	9230	96 520	9260	96 661	4	
01	384	31	525	61	666	1	0.4
02	388	32	530	62	670	2	0.8
03	393	33	534	63	675	3	1.2
04	398	34	539	64	680	4	1.6
05	96 402	35	96 544	65	96 685	5	2.0
06	407	36	548	66	689	6	2.4
07	412	37	553	67	694	7	2.8
08	417	38	558	68	699	8	3.2
09	421	39	562	69	703	9	3.6
9210	96 426	9240	96 567	9270	96 708		

9270

9270" = 2° 34' 30"		9300" = 2° 35' 0"		9330" = 2° 35' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
9270	96 708	9300	96 848	9330	96 988	5
71	713	01	853	31	993	1 0.5
72	717	02	858	32	997	2 1.0
73	722	03	862	33	97 002	3 1.5
74	727	04	867	34	007	4 2.0
75	96 731	05	96 872	35	97 011	5 2.5
76	736	06	876	36	016	6 3.0
77	741	07	881	37	021	7 3.5
78	745	08	886	38	025	8 4.0
79	750	09	890	39	030	9 4.5
9280	96 755	9310	96 895	9340	97 035	
81	759	11	900	41	039	
82	764	12	904	42	044	
83	769	13	909	43	049	
84	774	14	914	44	053	
85	96 778	15	96 918	45	97 058	
86	783	16	923	46	063	
87	788	17	928	47	067	
88	792	18	932	48	072	
89	797	19	937	49	077	
9290	96 802	9320	96 942	9350	97 081	4
91	806	21	946	51	086	1 0.4
92	811	22	951	52	090	2 0.8
93	816	23	956	53	095	3 1.2
94	820	24	960	54	100	4 1.6
95	96 825	25	96 965	55	97 104	5 2.0
96	830	26	970	56	109	6 2.4
97	834	27	974	57	114	7 2.8
98	839	28	979	58	118	8 3.2
99	844	29	984	59	123	9 3.6
9300	96 848	9330	96 988	9360	97 128	

9360

9360° = 2° 36' 0"		9390° = 2° 36' 30"		9420° = 2° 37' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
9360	97 128	9390	97 267	9420	97 405	5	
61	132	91	271	21	410	1	0.5
62	137	92	276	22	414	2	1.0
63	142	93	280	23	419	3	1.5
64	146	94	285	24	424	4	2.0
65	97 151	95	97 290	25	97 428	5	2.5
66	155	96	294	26	433	6	3.0
67	160	97	299	27	437	7	3.5
68	165	98	304	28	442	8	4.0
69	169	99	308	29	447	9	4.5
9370	97 174	9400	97 313	9430	97 451		
71	179	01	317	31	456		
72	183	02	322	32	460		
73	188	03	327	33	465		
74	192	04	331	34	470		
75	97 197	05	97 336	35	97 474		
76	202	06	340	36	479		
77	206	07	345	37	483		
78	211	08	350	38	488		
79	216	09	354	39	493		
9380	97 220	9410	97 359	9440	97 497	4	
81	225	11	364	41	502	1	0.4
82	230	12	368	42	506	2	0.8
83	234	13	373	43	511	3	1.2
84	239	14	377	44	516	4	1.6
85	97 243	15	97 382	45	97 520	5	2.0
86	248	16	387	46	525	6	2.4
87	253	17	391	47	529	7	2.8
88	257	18	396	48	534	8	3.2
89	262	19	400	49	539	9	3.6
9390	97 267	9420	97 405	9450	97 543		

9450

9450" = 2° 37' 30"		9480" = 2° 38' 0"		9510" = 2° 38' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
9450	97 543	9480	97 681	9510	97 818	5
51	548	81	685	11	823	1 0'5
52	552	82	690	12	827	2 1'0
53	557	83	695	13	832	3 1'5
54	562	84	699	14	836	4 2'0
55	97 566	85	97 704	15	97 841	5 2'5
56	571	86	708	16	845	6 3'0
57	575	87	713	17	850	7 3'5
58	580	88	717	18	855	8 4'0
59	585	89	722	19	859	9 4'5
9460	97 589	9490	97 727	9520	97 864	
61	594	91	731	21	868	
62	598	92	736	22	873	
63	603	93	740	23	877	
64	607	94	745	24	882	
65	97 612	95	97 749	25	97 886	
66	617	96	754	26	891	
67	621	97	759	27	896	
68	626	98	763	28	900	
69	630	99	768	29	905	
9470	97 635	9500	97 772	9530	97 909	4
71	640	01	777	31	914	1 0'4
72	644	02	782	32	918	2 0'8
73	649	03	786	33	923	3 1'2
74	653	04	791	34	928	4 1'6
75	97 658	05	97 795	35	97 932	5 2'0
76	663	06	800	36	937	6 2'4
77	667	07	804	37	941	7 2'8
78	672	08	809	38	946	8 3'2
79	676	09	813	39	950	9 3'6
9480	97 681	9510	97 818	9540	97 955	

9540

9540" = 2° 39' 0"		9570" = 2° 39' 30"		9600" = 2° 40' 0"		PP.	
N.	Log.	N.	Log.	N.	Log.		
9540	97 955	9570	98 091	9600	98 227	5	
41	959	71	096	01	232	1	0.5
42	964	72	100	02	236	2	1.0
43	968	73	105	03	241	3	1.5
44	973	74	109	04	245	4	2.0
45	97 978	75	98 114	05	98 250	5	2.5
46	982	76	118	06	254	6	3.0
47	987	77	123	07	259	7	3.5
48	991	78	127	08	263	8	4.0
49	996	79	132	09	268	9	4.5
9550	98 000	9580	98 137	9610	98 272		
51	005	81	141	11	277		
52	009	82	146	12	281		
53	014	83	150	13	286		
54	019	84	155	14	290		
55	98 023	85	98 159	15	98 295		
56	028	86	164	16	299		
57	032	87	168	17	304		
58	037	88	173	18	308		
59	041	89	177	19	313		
9560	98 046	9590	98 182	9620	98 318	4	
61	050	91	186	21	322	1	0.4
62	055	92	191	22	327	2	0.8
63	059	93	195	23	331	3	1.2
64	064	94	200	24	336	4	1.6
65	98 068	95	98 204	25	98 340	5	2.0
66	073	96	209	26	345	6	2.4
67	078	97	214	27	349	7	2.8
68	082	98	218	28	354	8	3.2
69	087	99	223	29	358	9	3.6
9570	98 091	9600	98 227	9630	98 363		

9630

9630" = 2° 40' 30"		9660" = 2° 41' 0"		9690" = 2° 41' 30"		PP.
N.	Log.	N.	Log.	N.	Log.	
9630	98 363	9660	98 498	9690	98 632	5
31	367	61	502	91	637	1 0.5
32	372	62	507	92	641	2 1.0
33	376	63	511	93	646	3 1.5
34	381	64	516	94	650	4 2.0
35	98 385	65	98 520	95	98 655	5 2.5
36	390	66	525	96	659	6 3.0
37	394	67	529	97	664	7 3.5
38	399	68	534	98	668	8 4.0
39	403	69	538	99	673	9 4.5
9640	98 408	9670	98 543	9700	98 677	
41	412	71	547	01	682	
42	417	72	552	02	686	
43	421	73	556	03	691	
44	426	74	561	04	695	
45	98 430	75	98 565	05	98 700	
46	435	76	570	06	704	
47	439	77	574	07	709	
48	444	78	579	08	713	
49	448	79	583	09	717	
9650	98 453	9680	98 588	9710	98 722	4
51	457	81	592	11	726	
52	462	82	597	12	731	1 0.4
53	466	83	601	13	735	2 0.8
54	471	84	605	14	740	3 1.2
55	98 475	85	98 610	15	98 744	4 1.6
56	480	86	614	16	749	5 2.0
57	484	87	619	17	753	6 2.4
58	489	88	623	18	758	7 2.8
59	493	89	628	19	762	8 3.2
9660	98 498	9690	98 632	9720	98 767	9 3.6

9720

9720" = 2° 42' 0"		9750" = 2° 42' 30"		9780" = 2° 43' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
9720	98 767	9750	98 900	9780	99 034	5.
21	771	51	905	81	038	1 0.5
22	776	52	909	82	043	2 1.0
23	780	53	914	83	047	3 1.5
24	784	54	918	84	052	4 2.0
25	98 789	55	98 923	85	99 056	5 2.5
26	793	56	927	86	061	6 3.0
27	798	57	932	87	065	7 3.5
28	802	58	936	88	069	8 4.0
29	807	59	941	89	074	9 4.5
9730	98 811	9760	98 945	9790	99 078	
31	816	61	949	91	083	
32	820	62	954	92	087	
33	825	63	958	93	092	
34	829	64	963	94	096	
35	98 834	65	98 967	95	99 100	
36	838	66	972	96	105	
37	843	67	976	97	109	
38	847	68	981	98	114	
39	851	69	985	99	118	
9740	98 856	9770	98 989	9800	99 123	4
41	860	71	994	01	127	1 0.4
42	865	72	998	02	131	2 0.8
43	869	73	99 003	03	136	3 1.2
44	874	74	007	04	140	4 1.6
45	98 878	75	99 012	05	99 145	5 2.0
46	883	76	016	06	149	6 2.4
47	887	77	021	07	154	7 2.8
48	892	78	025	08	158	8 3.2
49	896	79	029	09	162	9 3.6
9750	98 900	9780	99 034	9810	99 167	

9810

9810" = 2° 43' 30"		9840" = 2° 44' 0"		9870" = 2° 44' 30"		PP.	
N.	Log.	N.	Log.	N.	Log.		
9810	99 167	9840	99 300	9870	99 432	5	
11	171	41	304	71	436	1	0'5
12	176	42	308	72	441	2	1'0
13	180	43	313	73	445	3	1'5
14	185	44	317	74	449	4	2'0
15	99 189	45	99 322	75	99 454	5	2'5
16	193	46	326	76	458	6	3'0
17	198	47	330	77	463	7	3'5
18	202	48	335	78	467	8	4'0
19	207	49	339	79	471	9	4'5
9820	99 211	9850	99 344	9880	99 476	4	
21	216	51	348	81	480		
22	220	52	352	82	484		
23	224	53	357	83	489		
24	229	54	361	84	493		
25	99 233	55	99 366	85	99 498		
26	238	56	370	86	502		
27	242	57	374	87	506		
28	247	58	379	88	511		
29	251	59	383	89	515		
9830	99 255	9860	99 388	9890	99 520		
31	260	61	392	91	524		
32	264	62	396	92	528	1	0'4
33	269	63	401	93	533	2	0'8
34	273	64	405	94	537	3	1'2
35	99 277	65	99 410	95	99 542	4	1'6
36	282	66	414	96	546	5	2'0
37	286	67	419	97	550	6	2'4
38	291	68	423	98	555	7	2'8
39	295	69	427	99	559	8	3'2
9840	99 300	9870	99 432	9900	99 564	9	3'6

9900

9900" = 2° 45' 0"		9930" = 2° 45' 30"		9960" = 2° 46' 0"		PP.
N.	Log.	N.	Log.	N.	Log.	
9900	99 564	9930	99 695	9960	99 826	5
01	568	31	699	61	830	1 0.5
02	572	32	704	62	835	2 1.0
03	577	33	708	63	839	3 1.5
04	581	34	712	64	843	4 2.0
05	99 585	35	99 717	65	99 848	5 2.5
06	590	36	721	66	852	6 3.0
07	594	37	726	67	856	7 3.5
08	599	38	730	68	861	8 4.0
09	603	39	734	69	865	9 4.5
9910	99 607	9940	99 739	9970	99 870	
11	612	41	743	71	874	
12	616	42	747	72	878	
13	621	43	752	73	883	
14	625	44	756	74	887	
15	99 629	45	99 760	75	99 891	
16	634	46	765	76	896	
17	638	47	769	77	900	
18	642	48	774	78	904	
19	647	49	778	79	909	
9920	99 651	9950	99 782	9980	99 913	4
21	656	51	787	81	917	1 0.4
22	660	52	791	82	922	2 0.8
23	664	53	795	83	926	3 1.2
24	669	54	800	84	930	4 1.6
25	99 673	55	99 804	85	99 935	5 2.0
26	677	56	808	86	939	6 2.4
27	682	57	813	87	944	7 2.8
28	686	58	817	88	948	8 3.2
29	691	59	822	89	952	9 3.6
9930	99 695	9960	99 826	9990	99 957	

9990" = 2° 46' 30"		9993" = 2° 46' 33"		9996" = 2° 46' 36"		PP.		
N.	Log.	N.	Log.	N.	Log.			
9990	99 957	9993	99 970	9996	99 983	1	0.4	0.5
91	961	94	974	97	987	2	0.8	1.0
92	965	95	978	98	991	3	1.2	1.8
93	970	96	983	99	996	4	1.6	2.0
						5	2.0	2.5
						6	2.4	3.0
						7	2.8	3.5
						8	3.2	4.0
						9	3.6	4.5

Log. 10000 = 4.00000.

SOLUTION OF THE QUADRATIC EQUATION
 $x^2 \pm px \pm q = 0$,
 BY TRIGONOMETRICAL TABLES.

<p>Case I. $x^2 + px - q = 0$. $\tan A = \frac{\sqrt{q}}{\frac{1}{2}p}$. (1) $x = \tan \frac{1}{2} A \sqrt{q}$. (2) $x = -\cot \frac{1}{2} A \sqrt{q}$.</p>	<p>Case II. $x^2 - px - q = 0$. $\tan A = \frac{\sqrt{q}}{\frac{1}{2}p}$. (1) $x = -\tan \frac{1}{2} A \sqrt{q}$. (2) $x = \cot \frac{1}{2} A \sqrt{q}$.</p>
<p>Case III. $x^2 + px + q = 0$. $\frac{1}{2}p > \sqrt{q}$. $\sin A = \frac{\sqrt{q}}{\frac{1}{2}p}$. (1) $x = -\tan \frac{1}{2} A \sqrt{q}$. (2) $x = -\cot \frac{1}{2} A \sqrt{q}$.</p>	<p>Case IV. $x^2 - px + q = 0$. $\frac{1}{2}p > \sqrt{q}$. $\sin A = \frac{\sqrt{q}}{\frac{1}{2}p}$. (1) $x = \tan \frac{1}{2} A \sqrt{q}$. (2) $x = \cot \frac{1}{2} A \sqrt{q}$.</p>
<p>Case V. $x^2 \pm px + q = 0$. $\frac{1}{2}p < \sqrt{q}$. $\sec A = \frac{\sqrt{q}}{\frac{1}{2}p}$. $x = (\mp \cos A \pm \sqrt{-1} \sin A) \sqrt{q}$.</p>	

LOGARITHMS
OF
SINES AND TANGENTS
TO
EVERY MINUTE OF THE QUADRANT.

0°

'	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	'
0	- ∞	+ ∞	- ∞	∞	+ ∞	0.00000	60
1	6.46373	30103	6.46373	30103	13.53627	0.00000	59
2	6.76476	17609	6.76476	17609	13.23524	0.00000	58
3	6.94085	12494	6.94085	12494	13.05915	0.00000	57
4	7.06579	9691	7.06579	9691	12.93421	0.00000	56
5	7.16270	7918	7.16270	7918	12.83730	0.00000	55
6	7.24188	6694	7.24188	6694	12.75812	0.00000	54
7	7.30882	5800	7.30882	5800	12.69118	0.00000	53
8	7.36682	5115	7.36682	5115	12.63318	0.00000	52
9	7.41797	4576	7.41797	4576	12.58203	0.00000	51
10	7.46373	4139	7.46373	4139	12.53627	0.00000	50
11	7.50512	3779	7.50512	3779	12.49488	0.00000	49
12	7.54291	3476	7.54291	3476	12.45709	0.00000	48
13	7.57767	3218	7.57767	3219	12.42233	0.00000	47
14	7.60985	2997	7.60986	2996	12.39014	0.00000	46
15	7.63982	2802	7.63982	2803	12.36018	0.00000	45
16	7.66784	2633	7.66785	2633	12.33215	0.00000	44
17	7.69417	2483	7.69418	2482	12.30582	9.99999	43
18	7.71900	2348	7.71900	2348	12.28100	9.99999	42
19	7.74248	2227	7.74248	2228	12.25752	9.99999	41
20	7.76475	2119	7.76476	2119	12.23524	9.99999	40
21	7.78594	2021	7.78595	2020	12.21405	9.99999	39
22	7.80615	1930	7.80615	1931	12.19385	9.99999	38
23	7.82545	1848	7.82546	1848	12.17454	9.99999	37
24	7.84393	1773	7.84394	1773	12.15606	9.99999	36
25	7.86166	1704	7.86167	1704	12.13833	9.99999	35
26	7.87870	1639	7.87871	1639	12.12129	9.99999	34
27	7.89509	1579	7.89510	1579	12.10490	9.99999	33
28	7.91088	1524	7.91089	1524	12.08911	9.99999	32
29	7.92612	1472	7.92613	1473	12.07387	9.99998	31
30	7.94084		7.94086		12.05914	9.99998	30
'	Cosine.		Cotang.		Tang.	Sine.	'

0°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	7'94084		7'94086		12'05914	9'99998	30
31	7'95508	1424	7'95510	1424	12'04490	9'99998	29
32	7'96887	1379	7'96889	1379	12'03111	9'99998	28
33	7'98223	1336	7'98225	1336	12'01775	9'99998	27
34	7'99520	1297	7'99522	1297	12'00478	9'99998	26
35	8'00779	1259	8'00781	1259	11'99219	9'99998	25
36	8'02002	1223	8'02004	1223	11'97996	9'99998	24
		1190		1190			
37	8'03192		8'03194		11'96806	9'99997	23
38	8'04350	1158	8'04353	1159	11'95647	9'99997	22
39	8'05478	1128	8'05481	1128	11'94519	9'99997	21
40	8'06578	1100	8'06581	1100	11'93419	9'99997	20
41	8'07650	1072	8'07653	1072	11'92347	9'99997	19
42	8'08696	1046	8'08700	1047	11'91300	9'99997	18
		1022		1022			
43	8'09718		8'09722		11'90278	9'99997	17
44	8'10717	999	8'10720	998	11'89280	9'99996	16
45	8'11693	976	8'11696	976	11'88304	9'99996	15
46	8'12647	954	8'12651	955	11'87349	9'99996	14
47	8'13581	934	8'13585	934	11'86415	9'99996	13
48	8'14495	914	8'14500	915	11'85500	9'99996	12
		896		895			
49	8'15391		8'15395		11'84605	9'99996	11
50	8'16268	877	8'16273	878	11'83727	9'99995	10
51	8'17128	860	8'17133	860	11'82867	9'99995	9
52	8'17971	843	8'17976	843	11'82024	9'99995	8
53	8'18798	827	8'18804	828	11'81196	9'99995	7
54	8'19610	812	8'19616	812	11'80384	9'99995	6
		797		797			
55	8'20407		8'20413		11'79587	9'99994	5
56	8'21189	782	8'21195	782	11'78805	9'99994	4
57	8'21958	769	8'21964	769	11'78036	9'99994	3
58	8'22713	755	8'22720	756	11'77280	9'99994	2
59	8'23456	743	8'23462	742	11'76538	9'99994	1
60	8'24186	730	8'24192	730	11'75808	9'99993	0
/	Cosine.		Cotang.		Tang.	Sine.	/

89°

1°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	8.24186		8.24192		11.75808	9.99993	60
1	8.24903	717	8.24910	718	11.75090	9.99993	59
2	8.25609	706	8.25616	706	11.74384	9.99993	58
3	8.26304	695	8.26312	696	11.73688	9.99993	57
4	8.26988	684	8.26996	684	11.73004	9.99992	56
5	8.27661	673	8.27669	673	11.72331	9.99992	55
6	8.28324	663	8.28332	663	11.71668	9.99992	54
		653		654			
7	8.28977		8.28986		11.71014	9.99992	53
8	8.29621	644	8.29629	643	11.70371	9.99992	52
9	8.30255	634	8.30263	634	11.69737	9.99991	51
10	8.30879	624	8.30888	625	11.69112	9.99991	50
11	8.31495	616	8.31505	617	11.68495	9.99991	49
12	8.32103	608	8.32112	607	11.67888	9.99990	48
		599		599			
13	8.32702		8.32711		11.67289	9.99990	47
14	8.33292	590	8.33302	591	11.66698	9.99990	46
15	8.33875	583	8.33886	584	11.66114	9.99990	45
16	8.34450	575	8.34461	575	11.65539	9.99989	44
17	8.35018	568	8.35029	568	11.64971	9.99989	43
18	8.35578	560	8.35590	561	11.64410	9.99989	42
		553		553			
19	8.36131		8.36143		11.63857	9.99989	41
20	8.36678	547	8.36689	546	11.63311	9.99988	40
21	8.37217	539	8.37229	540	11.62771	9.99988	39
22	8.37750	533	8.37762	533	11.62238	9.99988	38
23	8.38276	526	8.38289	527	11.61711	9.99987	37
24	8.38796	520	8.38809	520	11.61191	9.99987	36
		514		514			
25	8.39310		8.39323		11.60677	9.99987	35
26	8.39818	508	8.39832	509	11.60168	9.99986	34
27	8.40320	502	8.40334	502	11.59666	9.99986	33
28	8.40816	496	8.40830	496	11.59170	9.99986	32
29	8.41307	491	8.41321	491	11.58679	9.99985	31
30	8.41792	485	8.41807	486	11.58193	9.99985	30
/	Cosine.		Cotang.		Tang.	Sine.	/

1°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	8.41792	480	8.41807	480	11.58193	9.99985	30
31	8.42272	474	8.42287	475	11.57713	9.99985	29
32	8.42746	470	8.42762	470	11.57238	9.99984	28
33	8.43216	464	8.43232	464	11.56768	9.99984	27
34	8.43680	459	8.43696	460	11.56304	9.99984	26
35	8.44139	455	8.44156	455	11.55844	9.99983	25
36	8.44594	450	8.44611	450	11.55389	9.99983	24
37	8.45044	445	8.45061	446	11.54939	9.99983	23
38	8.45489	441	8.45507	441	11.54493	9.99982	22
39	8.45930	436	8.45948	437	11.54052	9.99982	21
40	8.46366	433	8.46385	432	11.53615	9.99982	20
41	8.46799	427	8.46817	428	11.53183	9.99981	19
42	8.47226	424	8.47245	424	11.52755	9.99981	18
43	8.47650	419	8.47669	420	11.52331	9.99981	17
44	8.48069	416	8.48089	416	11.51911	9.99980	16
45	8.48485	411	8.48505	412	11.51495	9.99980	15
46	8.48896	408	8.48917	408	11.51083	9.99979	14
47	8.49304	404	8.49325	404	11.50675	9.99979	13
48	8.49708	400	8.49729	401	11.50271	9.99979	12
49	8.50108	396	8.50130	397	11.49870	9.99978	11
50	8.50504	393	8.50527	393	11.49473	9.99978	10
51	8.50897	390	8.50920	390	11.49080	9.99977	9
52	8.51287	386	8.51310	386	11.48690	9.99977	8
53	8.51673	382	8.51696	383	11.48304	9.99977	7
54	8.52055	379	8.52079	380	11.47921	9.99976	6
55	8.52434	376	8.52459	376	11.47541	9.99976	5
56	8.52810	373	8.52835	373	11.47165	9.99975	4
57	8.53183	369	8.53208	370	11.46792	9.99975	3
58	8.53552	367	8.53578	367	11.46422	9.99974	2
59	8.53919	363	8.53945	363	11.46055	9.99974	1
60	8.54282		8.54308		11.45692	9.99974	0
/	Cosine.		Cotang.		Tang.	Sine.	/

2°

'	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	'
0	8.54282	360	8.54308	361	11.45692	9.99974	60
1	8.54642	357	8.54669	358	11.45331	9.99973	59
2	8.54999	355	8.55027	355	11.44973	9.99973	58
3	8.55354	351	8.55382	352	11.44618	9.99972	57
4	8.55705	349	8.55734	349	11.44266	9.99972	56
5	8.56054	346	8.56083	346	11.43917	9.99971	55
6	8.56400	343	8.56429	344	11.43571	9.99971	54
7	8.56743	341	8.56773	341	11.43227	9.99970	53
8	8.57084	337	8.57114	338	11.42886	9.99970	52
9	8.57421	336	8.57452	336	11.42548	9.99969	51
10	8.57757	332	8.57788	333	11.42212	9.99969	50
11	8.58089	330	8.58121	330	11.41879	9.99968	49
12	8.58419	328	8.58451	328	11.41549	9.99968	48
13	8.58747	325	8.58779	326	11.41221	9.99967	47
14	8.59072	323	8.59105	323	11.40895	9.99967	46
15	8.59395	320	8.59428	321	11.40572	9.99967	45
16	8.59715	318	8.59749	319	11.40251	9.99966	44
17	8.60033	316	8.60068	316	11.39932	9.99966	43
18	8.60349	313	8.60384	314	11.39616	9.99965	42
19	8.60662	311	8.60698	311	11.39302	9.99964	41
20	8.60973	309	8.61009	310	11.38991	9.99964	40
21	8.61282	307	8.61319	307	11.38681	9.99963	39
22	8.61589	305	8.61626	305	11.38374	9.99963	38
23	8.61894	302	8.61931	303	11.38069	9.99962	37
24	8.62196	301	8.62234	301	11.37766	9.99962	36
25	8.62497	298	8.62535	299	11.37465	9.99961	35
26	8.62795	296	8.62834	297	11.37166	9.99961	34
27	8.63091	294	8.63131	295	11.36869	9.99960	33
28	8.63385	293	8.63426	292	11.36574	9.99960	32
29	8.63678	290	8.63718	291	11.36282	9.99959	31
30	8.63968		8.64009		11.35991	9.99959	30
'	Cosine.		Cotang.		Tang.	Sine.	'

2°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	8.63968	288	8.64009	289	11.35991	9.99959	30
31	8.64256	287	8.64298	287	11.35702	9.99958	29
32	8.64543	284	8.64585	285	11.35415	9.99958	28
33	8.64827	283	8.64870	284	11.35130	9.99957	27
34	8.65110	281	8.65154	281	11.34846	9.99956	26
35	8.65391	279	8.65435	280	11.34565	9.99956	25
36	8.65670	277	8.65715	278	11.34285	9.99955	24
37	8.65947	276	8.65993	276	11.34007	9.99955	23
38	8.66223	274	8.66269	274	11.33731	9.99954	22
39	8.66497	272	8.66543	273	11.33457	9.99954	21
40	8.66769	270	8.66816	271	11.33184	9.99953	20
41	8.67039	269	8.67087	269	11.32913	9.99952	19
42	8.67308	267	8.67356	268	11.32644	9.99952	18
43	8.67575	266	8.67624	266	11.32376	9.99951	17
44	8.67841	263	8.67890	264	11.32110	9.99951	16
45	8.68104	263	8.68154	263	11.31846	9.99950	15
46	8.68367	260	8.68417	261	11.31583	9.99949	14
47	8.68627	259	8.68678	260	11.31322	9.99949	13
48	8.68886	258	8.68938	258	11.31062	9.99948	12
49	8.69144	256	8.69196	257	11.30804	9.99948	11
50	8.69400	254	8.69453	255	11.30547	9.99947	10
51	8.69654	253	8.69708	254	11.30292	9.99946	9
52	8.69907	252	8.69962	252	11.30038	9.99946	8
53	8.70159	250	8.70214	251	11.29786	9.99945	7
54	8.70409	249	8.70465	249	11.29535	9.99944	6
55	8.70658	247	8.70714	248	11.29286	9.99944	5
56	8.70905	246	8.70962	246	11.29038	9.99943	4
57	8.71151	244	8.71208	245	11.28792	9.99942	3
58	8.71395	243	8.71453	244	11.28547	9.99942	2
59	8.71638	242	8.71697	243	11.28303	9.99941	1
60	8.71880		8.71940		11.28060	9.99940	0
/	Cosine.		Cotang.		Tang.	Sine.	/

3°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	8.71880	240	8.71940	241	11.28060	9.99940	60
1	8.72120	239	8.72181	239	11.27819	9.99940	59
2	8.72359	238	8.72420	239	11.27580	9.99939	58
3	8.72597	237	8.72659	237	11.27341	9.99938	57
4	8.72834	235	8.72896	236	11.27104	9.99938	56
5	8.73069	234	8.73132	234	11.26868	9.99937	55
6	8.73303	232	8.73366	234	11.26634	9.99936	54
7	8.73535	232	8.73600	232	11.26400	9.99936	53
8	8.73767	230	8.73832	231	11.26168	9.99935	52
9	8.73997	229	8.74063	229	11.25937	9.99934	51
10	8.74226	228	8.74292	229	11.25708	9.99934	50
11	8.74454	226	8.74521	227	11.25479	9.99933	49
12	8.74680	226	8.74748	226	11.25252	9.99932	48
13	8.74906	224	8.74974	225	11.25026	9.99932	47
14	8.75130	223	8.75199	224	11.24801	9.99931	46
15	8.75353	222	8.75423	222	11.24577	9.99930	45
16	8.75575	220	8.75645	222	11.24355	9.99929	44
17	8.75795	220	8.75867	220	11.24133	9.99929	43
18	8.76015	219	8.76087	219	11.23913	9.99928	42
19	8.76234	217	8.76306	219	11.23694	9.99927	41
20	8.76451	216	8.76525	217	11.23475	9.99926	40
21	8.76667	216	8.76742	216	11.23258	9.99926	39
22	8.76883	214	8.76958	215	11.23042	9.99925	38
23	8.77097	213	8.77173	214	11.22827	9.99924	37
24	8.77310	212	8.77387	213	11.22613	9.99923	36
25	8.77522	211	8.77600	211	11.22400	9.99923	35
26	8.77733	210	8.77811	211	11.22189	9.99922	34
27	8.77943	209	8.78022	210	11.21978	9.99921	33
28	8.78152	208	8.78232	209	11.21768	9.99920	32
29	8.78360	208	8.78441	208	11.21559	9.99920	31
30	8.78568		8.78649		11.21351	9.99919	30
/	Cosine.		Cotang.		Tang.	Sine.	/

3°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	8·78568		8·78649		11·21351	9·99919	30
31	8·78774	206	8·78855	206	11·21145	9·99918	29
32	8·78979	205	8·79061	206	11·20939	9·99917	28
33	8·79183	204	8·79266	205	11·20734	9·99917	27
34	8·79386	203	8·79470	204	11·20530	9·99916	26
35	8·79588	202	8·79673	203	11·20327	9·99915	25
36	8·79789	201	8·79875	202	11·20125	9·99914	24
		201		201			
37	8·79990		8·80076		11·19924	9·99913	23
38	8·80189	199	8·80277	201	11·19723	9·99913	22
39	8·80388	199	8·80476	199	11·19524	9·99912	21
40	8·80585	197	8·80674	198	11·19326	9·99911	20
41	8·80782	197	8·80872	198	11·19128	9·99910	19
42	8·80978	196	8·81068	196	11·18932	9·99909	18
		195		196			
43	8·81173		8·81264		11·18736	9·99909	17
44	8·81367	194	8·81459	195	11·18541	9·99908	16
45	8·81560	193	8·81653	194	11·18347	9·99907	15
46	8·81752	192	8·81846	193	11·18154	9·99906	14
47	8·81944	192	8·82038	192	11·17962	9·99905	13
48	8·82134	190	8·82230	192	11·17770	9·99904	12
		190		190			
49	8·82324		8·82420		11·17580	9·99904	11
50	8·82513	189	8·82610	190	11·17390	9·99903	10
51	8·82701	188	8·82799	189	11·17201	9·99902	9
52	8·82888	187	8·82987	188	11·17013	9·99901	8
53	8·83075	187	8·83175	188	11·16825	9·99900	7
54	8·83261	186	8·83361	186	11·16639	9·99899	6
		185		186			
55	8·83446		8·83547		11·16453	9·99898	5
56	8·83630	184	8·83732	185	11·16268	9·99898	4
57	8·83813	183	8·83916	184	11·16084	9·99897	3
58	8·83996	183	8·84100	184	11·15900	9·99896	2
59	8·84177	181	8·84282	182	11·15718	9·99895	1
60	8·84358	181	8·84464	182	11·15536	9·99894	0
/	Cosine.		Cotang.		Tang.	Sine.	/

86°

4°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	8·84358		8·84464		11·15536	9·99894	60
1	8·84539	181	8·84646	182	11·15354	9·99893	59
2	8·84718	179	8·84826	180	11·15174	9·99892	58
3	8·84897	179	8·85006	180	11·14994	9·99891	57
4	8·85075	178	8·85185	179	11·14815	9·99891	56
5	8·85252	177	8·85363	178	11·14637	9·99890	55
6	8·85429	177	8·85540	177	11·14460	9·99889	54
		176		177			
7	8·85605		8·85717		11·14283	9·99888	53
8	8·85780	175	8·85893	176	11·14107	9·99887	52
9	8·85955	175	8·86069	176	11·13931	9·99886	51
10	8·86128	173	8·86243	174	11·13757	9·99885	50
11	8·86301	173	8·86417	174	11·13583	9·99884	49
12	8·86474	173	8·86591	174	11·13409	9·99883	48
		171		172			
13	8·86645		8·86763		11·13237	9·99882	47
14	8·86816	171	8·86935	172	11·13065	9·99881	46
15	8·86987	171	8·87106	171	11·12894	9·99880	45
16	8·87156	169	8·87277	171	11·12723	9·99879	44
17	8·87325	169	8·87447	170	11·12553	9·99879	43
18	8·87494	169	8·87616	169	11·12384	9·99878	42
		167		169			
19	8·87661		8·87785		11·12215	9·99877	41
20	8·87829	168	8·87953	168	11·12047	9·99876	40
21	8·87995	166	8·88120	167	11·11880	9·99875	39
22	8·88161	166	8·88287	167	11·11713	9·99874	38
23	8·88326	165	8·88453	166	11·11547	9·99873	37
24	8·88490	164	8·88618	165	11·11382	9·99872	36
		164		165			
25	8·88654		8·88783		11·11217	9·99871	35
26	8·88817	163	8·88948	165	11·11052	9·99870	34
27	8·88980	163	8·89111	163	11·10889	9·99869	33
28	8·89142	162	8·89274	163	11·10726	9·99868	32
29	8·89304	162	8·89437	163	11·10563	9·99867	31
30	8·89464	160	8·89598	161	11·10402	9·99866	30
/	Cosine.		Cotang.		Tang.	Sine.	/

85°

4°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	8·89464		8·89598		11·10402	9·99866	30
31	8·89625	161	8·89760	162	11·10240	9·99865	29
32	8·89784	159	8·89920	160	11·10080	9·99864	28
33	8·89943	159	8·90080	160	11·09920	9·99863	27
34	8·90102	159	8·90240	160	11·09760	9·99862	26
35	8·90260	158	8·90399	159	11·09601	9·99861	25
36	8·90417	157	8·90557	158	11·09443	9·99860	24
37	8·90574		8·90715		11·09285	9·99859	23
38	8·90730	156	8·90872	157	11·09128	9·99858	22
39	8·90885	155	8·91029	157	11·08971	9·99857	21
40	8·91040	155	8·91185	156	11·08815	9·99856	20
41	8·91195	155	8·91340	155	11·08660	9·99855	19
42	8·91349	154	8·91495	155	11·08505	9·99854	18
43	8·91502		8·91650		11·08350	9·99853	17
44	8·91655	153	8·91803	153	11·08197	9·99852	16
45	8·91807	152	8·91957	154	11·08043	9·99851	15
46	8·91959	152	8·92110	153	11·07890	9·99850	14
47	8·92110	151	8·92262	152	11·07738	9·99848	13
48	8·92261	151	8·92414	152	11·07586	9·99847	12
49	8·92411		8·92565		11·07435	9·99846	11
50	8·92561	150	8·92716	151	11·07284	9·99845	10
51	8·92710	149	8·92866	150	11·07134	9·99844	9
52	8·92859	149	8·93016	150	11·06984	9·99843	8
53	8·93007	148	8·93165	149	11·06835	9·99842	7
54	8·93154	147	8·93313	148	11·06687	9·99841	6
55	8·93301		8·93462		11·06538	9·99840	5
56	8·93448	147	8·93609	147	11·06391	9·99839	4
57	8·93594	146	8·93756	147	11·06244	9·99838	3
58	8·93740	146	8·93903	147	11·06097	9·99837	2
59	8·93885	145	8·94049	146	11·05951	9·99836	1
60	8·94030	145	8·94195	146	11·05805	9·99834	0
/	Cosine.		Cotang.		Tang.	Sine.	/

6°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9°01923		9°02162		10°97838	9°99761	60
1	9°02043	120	9°02283	121	10°97717	9°99760	59
2	9°02163	120	9°02404	121	10°97596	9°99759	58
3	9°02283	120	9°02525	121	10°97475	9°99757	57
4	9°02402	119	9°02645	120	10°97355	9°99756	56
5	9°02520	118	9°02766	121	10°97234	9°99755	55
6	9°02639	119	9°02885	119	10°97115	9°99753	54
		118		120			
7	9°02757		9°03005		10°96995	9°99752	53
8	9°02874	117	9°03124	119	10°96876	9°99751	52
9	9°02992	118	9°03242	118	10°96758	9°99749	51
10	9°03109	117	9°03361	119	10°96639	9°99748	50
11	9°03226	117	9°03479	118	10°96521	9°99747	49
12	9°03342	116	9°03597	118	10°96403	9°99745	48
		116		117			
13	9°03458		9°03714		10°96286	9°99744	47
14	9°03574	116	9°03832	118	10°96168	9°99742	46
15	9°03690	116	9°03948	116	10°96052	9°99741	45
16	9°03805	115	9°04065	117	10°95935	9°99740	44
17	9°03920	115	9°04181	116	10°95819	9°99738	43
18	9°04034	114	9°04297	116	10°95703	9°99737	42
		115		116			
19	9°04149		9°04413		10°95587	9°99736	41
20	9°04262	113	9°04528	115	10°95472	9°99734	40
21	9°04376	114	9°04643	115	10°95357	9°99733	39
22	9°04490	114	9°04758	115	10°95242	9°99731	38
23	9°04603	113	9°04873	115	10°95127	9°99730	37
24	9°04715	112	9°04987	114	10°95013	9°99728	36
		113		114			
25	9°04828		9°05101		10°94899	9°99727	35
26	9°04940	112	9°05214	113	10°94786	9°99726	34
27	9°05052	112	9°05328	114	10°94672	9°99724	33
28	9°05164	112	9°05441	113	10°94559	9°99723	32
29	9°05275	111	9°05553	112	10°94447	9°99721	31
30	9°05386	111	9°05666	113	10°94334	9°99720	30
/	Cosine.		Cotang.		Tang.	Sine.	/

6°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9°05386		9°05666		10°94334	9°99720	30
31	9°05497	111	9°05778	112	10°94222	9°99718	29
32	9°05607	110	9°05890	112	10°94110	9°99717	28
33	9°05717	110	9°06002	112	10°93998	9°99716	27
34	9°05827	110	9°06113	111	10°93887	9°99714	26
35	9°05937	110	9°06224	111	10°93776	9°99713	25
36	9°06046	109	9°06335	111	10°93665	9°99711	24
		109		110			
37	9°06155	109	9°06445	111	10°93555	9°99710	23
38	9°06264	108	9°06556	110	10°93444	9°99708	22
39	9°06372	109	9°06666	110	10°93334	9°99707	21
40	9°06481	108	9°06775	109	10°93225	9°99705	20
41	9°06589	108	9°06885	110	10°93115	9°99704	19
42	9°06696	107	9°06994	109	10°93006	9°99702	18
		108		109			
43	9°06804	107	9°07103	108	10°92897	9°99701	17
44	9°06911	107	9°07211	108	10°92789	9°99699	16
45	9°07018	106	9°07320	109	10°92680	9°99698	15
46	9°07124	107	9°07428	108	10°92572	9°99696	14
47	9°07231	106	9°07536	108	10°92464	9°99695	13
48	9°07337	105	9°07643	107	10°92357	9°99693	12
		105		108			
49	9°07442	106	9°07751	107	10°92249	9°99692	11
50	9°07548	105	9°07858	106	10°92142	9°99690	10
51	9°07653	105	9°07964	107	10°92036	9°99689	9
52	9°07758	105	9°08071	106	10°91929	9°99687	8
53	9°07863	105	9°08177	106	10°91823	9°99686	7
54	9°07968	104	9°08283	106	10°91717	9°99684	6
		104		106			
55	9°08072	104	9°08389	106	10°91611	9°99683	5
56	9°08176	104	9°08495	105	10°91505	9°99681	4
57	9°08280	103	9°08600	105	10°91400	9°99680	3
58	9°08383	103	9°08705	105	10°91295	9°99678	2
59	9°08486	103	9°08810	104	10°91190	9°99677	1
60	9°08589		9°08914		10°91086	9°99675	0
/	Cosine.		Cotang.		Tang.	Sine.	/

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9°08589		9°08914		10°91086	9°99675	60
1	9°08692	103	9°09019	105	10°90981	9°99674	59
2	9°08795	103	9°09123	104	10°90877	9°99672	58
3	9°08897	102	9°09227	104	10°90773	9°99670	57
4	9°08999	102	9°09330	103	10°90670	9°99669	56
5	9°09101	102	9°09434	104	10°90566	9°99667	55
6	9°09202	101	9°09537	103	10°90463	9°99666	54
		102		103			
7	9°09304		9°09640		10°90360	9°99664	53
8	9°09405	101	9°09742	102	10°90258	9°99663	52
9	9°09506	101	9°09845	103	10°90155	9°99661	51
10	9°09606	100	9°09947	102	10°90053	9°99659	50
11	9°09707	101	9°10049	102	10°89951	9°99658	49
12	9°09807	100	9°10150	101	10°89850	9°99656	48
		100		102			
13	9°09907		9°10252		10°89748	9°99655	47
14	9°10006	99	9°10353	101	10°89647	9°99653	46
15	9°10106	100	9°10454	101	10°89546	9°99651	45
16	9°10205	99	9°10555	101	10°89445	9°99650	44
17	9°10304	99	9°10656	101	10°89344	9°99648	43
18	9°10402	98	9°10756	100	10°89244	9°99647	42
		99		100			
19	9°10501		9°10856		10°89144	9°99645	41
20	9°10599	98	9°10956	100	10°89044	9°99643	40
21	9°10697	98	9°11056	100	10°88944	9°99642	39
22	9°10795	98	9°11155	99	10°88845	9°99640	38
23	9°10893	98	9°11254	99	10°88746	9°99638	37
24	9°10990	97	9°11353	99	10°88647	9°99637	36
		97		99			
25	9°11087		9°11452		10°88548	9°99635	35
26	9°11184	97	9°11551	99	10°88449	9°99633	34
27	9°11281	97	9°11649	98	10°88351	9°99632	33
28	9°11377	96	9°11747	98	10°88253	9°99630	32
29	9°11474	97	9°11845	98	10°88155	9°99629	31
30	9°11570	96	9°11943	98	10°88057	9°99627	30
/	Cosine.		Cotang.		Tang.	Sine.	/

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9°11570	96	9°11943	97	10°88057	9°99627	30
31	9°11666	95	9°12040	98	10°87960	9°99625	29
32	9°11761	96	9°12138	97	10°87862	9°99624	28
33	9°11857	95	9°12235	97	10°87765	9°99622	27
34	9°11952	95	9°12332	96	10°87668	9°99620	26
35	9°12047	95	9°12428	97	10°87572	9°99618	25
36	9°12142	94	9°12525	96	10°87475	9°99617	24
37	9°12236	95	9°12621	96	10°87379	9°99615	23
38	9°12331	94	9°12717	96	10°87283	9°99613	22
39	9°12425	94	9°12813	96	10°87187	9°99612	21
40	9°12519	93	9°12909	95	10°87091	9°99610	20
41	9°12612	94	9°13004	95	10°86996	9°99608	19
42	9°12706	93	9°13099	95	10°86901	9°99607	18
43	9°12799	93	9°13194	95	10°86806	9°99605	17
44	9°12892	93	9°13289	95	10°86711	9°99603	16
45	9°12985	93	9°13384	94	10°86616	9°99601	15
46	9°13078	93	9°13478	95	10°86522	9°99600	14
47	9°13171	92	9°13573	94	10°86427	9°99598	13
48	9°13263	92	9°13667	94	10°86333	9°99596	12
49	9°13355	92	9°13761	93	10°86239	9°99595	11
50	9°13447	92	9°13854	94	10°86146	9°99593	10
51	9°13539	91	9°13948	93	10°86052	9°99591	9
52	9°13630	92	9°14041	93	10°85959	9°99589	8
53	9°13722	91	9°14134	93	10°85866	9°99588	7
54	9°13813	91	9°14227	93	10°85773	9°99586	6
55	9°13904	90	9°14320	92	10°85680	9°99584	5
56	9°13994	91	9°14412	92	10°85588	9°99582	4
57	9°14085	90	9°14504	93	10°85496	9°99581	3
58	9°14175	91	9°14597	91	10°85403	9°99579	2
59	9°14266	90	9°14688	92	10°85312	9°99577	1
60	9°14356	90	9°14780	92	10°85220	9°99575	0
/	Cosine.		Cotang.		Tang.	Sine.	/

8°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9°14356		9°14780		10°85220	9°99575	60
1	9°14445	89	9°14872	92	10°85128	9°99574	59
2	9°14535	90	9°14963	91	10°85037	9°99572	58
3	9°14624	89	9°15054	91	10°84946	9°99570	57
4	9°14714	90	9°15145	91	10°84855	9°99568	56
5	9°14803	89	9°15236	91	10°84764	9°99566	55
6	9°14891	88	9°15327	91	10°84673	9°99565	54
		89		90			
7	9°14980	89	9°15417		10°84583	9°99563	53
8	9°15069	88	9°15508	91	10°84492	9°99561	52
9	9°15157	88	9°15598	90	10°84402	9°99559	51
10	9°15245	88	9°15688	90	10°84312	9°99557	50
11	9°15333	88	9°15777	89	10°84223	9°99556	49
12	9°15421	88	9°15867	90	10°84133	9°99554	48
		87		89			
13	9°15508	88	9°15956		10°84044	9°99552	47
14	9°15596	87	9°16046	90	10°83954	9°99550	46
15	9°15683	87	9°16135	89	10°83865	9°99548	45
16	9°15770	87	9°16224	89	10°83776	9°99546	44
17	9°15857	87	9°16312	88	10°83688	9°99545	43
18	9°15944	87	9°16401	89	10°83599	9°99543	42
		86		88			
19	9°16030	86	9°16489		10°83511	9°99541	41
20	9°16116	87	9°16577	88	10°83423	9°99539	40
21	9°16203	87	9°16665	88	10°83335	9°99537	39
22	9°16289	86	9°16753	88	10°83247	9°99535	38
23	9°16374	85	9°16841	88	10°83159	9°99533	37
24	9°16460	86	9°16928	87	10°83072	9°99532	36
		85		88			
25	9°16545	86	9°17016		10°82984	9°99530	35
26	9°16631	85	9°17103	87	10°82897	9°99528	34
27	9°16716	85	9°17190	87	10°82810	9°99526	33
28	9°16801	85	9°17277	87	10°82723	9°99524	32
29	9°16886	85	9°17363	86	10°82637	9°99522	31
30	9°16970	84	9°17450	87	10°82550	9°99520	30
/	Cosine.		Cotang.		Tang.	Sine.	/

8°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9°16970	85	9°17450	86	10°82550	9°99520	30
31	9°17055	84	9°17536	86	10°82464	9°99518	29
32	9°17139	84	9°17622	86	10°82378	9°99517	28
33	9°17223	84	9°17708	86	10°82292	9°99515	27
34	9°17307	84	9°17794	86	10°82206	9°99513	26
35	9°17391	83	9°17880	85	10°82120	9°99511	25
36	9°17474	84	9°17965	86	10°82035	9°99509	24
37	9°17558	83	9°18051	85	10°81949	9°99507	23
38	9°17641	83	9°18136	85	10°81864	9°99505	22
39	9°17724	83	9°18221	85	10°81779	9°99503	21
40	9°17807	83	9°18306	85	10°81694	9°99501	20
41	9°17890	83	9°18391	84	10°81609	9°99499	19
42	9°17973	82	9°18475	85	10°81525	9°99497	18
43	9°18055	82	9°18560	84	10°81440	9°99495	17
44	9°18137	83	9°18644	84	10°81356	9°99494	16
45	9°18220	82	9°18728	84	10°81272	9°99492	15
46	9°18302	81	9°18812	84	10°81188	9°99490	14
47	9°18383	82	9°18896	83	10°81104	9°99488	13
48	9°18465	82	9°18979	84	10°81021	9°99486	12
49	9°18547	81	9°19063	83	10°80937	9°99484	11
50	9°18628	81	9°19146	83	10°80854	9°99482	10
51	9°18709	81	9°19229	83	10°80771	9°99480	9
52	9°18790	81	9°19312	83	10°80688	9°99478	8
53	9°18871	81	9°19395	83	10°80605	9°99476	7
54	9°18952	81	9°19478	83	10°80522	9°99474	6
55	9°19033	80	9°19561	82	10°80439	9°99472	5
56	9°19113	80	9°19643	82	10°80357	9°99470	4
57	9°19193	80	9°19725	82	10°80275	9°99468	3
58	9°19273	80	9°19807	82	10°80193	9°99466	2
59	9°19353	80	9°19889	82	10°80111	9°99464	1
60	9°19433		9°19971		10°80029	9°99462	0
/	Cosine.		Cotang.		Tang.	Sine.	/

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9°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9°19433	80	9°19971	82	10°80029	9°99462	80
1	9°19513	79	9°20053	81	10°79947	9°99460	59
2	9°19592	80	9°20134	82	10°79866	9°99458	58
3	9°19672	79	9°20216	81	10°79784	9°99456	57
4	9°19751	79	9°20297	81	10°79703	9°99454	56
5	9°19830	79	9°20378	81	10°79622	9°99452	55
6	9°19909	79	9°20459	81	10°79541	9°99450	54
7	9°19988	79	9°20540	81	10°79460	9°99448	53
8	9°20067	78	9°20621	80	10°79379	9°99446	52
9	9°20145	78	9°20701	81	10°79299	9°99444	51
10	9°20223	79	9°20782	80	10°79218	9°99442	50
11	9°20302	78	9°20862	80	10°79138	9°99440	49
12	9°20380	78	9°20942	80	10°79058	9°99438	48
13	9°20458	77	9°21022	80	10°78978	9°99436	47
14	9°20535	78	9°21102	80	10°78898	9°99434	46
15	9°20613	78	9°21182	79	10°78818	9°99432	45
16	9°20691	77	9°21261	80	10°78739	9°99429	44
17	9°20768	77	9°21341	79	10°78659	9°99427	43
18	9°20845	77	9°21420	79	10°78580	9°99425	42
19	9°20922	77	9°21499	79	10°78501	9°99423	41
20	9°20999	77	9°21578	79	10°78422	9°99421	40
21	9°21076	77	9°21657	79	10°78343	9°99419	39
22	9°21153	76	9°21736	78	10°78264	9°99417	38
23	9°21229	77	9°21814	79	10°78186	9°99415	37
24	9°21306	76	9°21893	78	10°78107	9°99413	36
25	9°21382	76	9°21971	78	10°78029	9°99411	35
26	9°21458	76	9°22049	78	10°77951	9°99409	34
27	9°21534	76	9°22127	78	10°77873	9°99407	33
28	9°21610	75	9°22205	78	10°77795	9°99404	32
29	9°21685	76	9°22283	78	10°77717	9°99402	31
30	9°21761		9°22361		10°77639	9°99400	30
/	Cosine.		Cotang.		Tang.	Sine.	/

9°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9°21761	75	9°22361	77	10°77639	9°99400	30
31	9°21836	76	9°22438	78	10°77562	9°99398	29
32	9°21912	75	9°22516	77	10°77484	9°99396	28
33	9°21987	75	9°22593	77	10°77407	9°99394	27
34	9°22062	75	9°22670	77	10°77330	9°99392	26
35	9°22137	74	9°22747	77	10°77253	9°99390	25
36	9°22211	75	9°22824	77	10°77176	9°99388	24
37	9°22286	75	9°22901	76	10°77099	9°99385	23
38	9°22361	74	9°22977	77	10°77023	9°99383	22
39	9°22435	74	9°23054	76	10°76946	9°99381	21
40	9°22509	74	9°23130	76	10°76870	9°99379	20
41	9°22583	74	9°23206	77	10°76794	9°99377	19
42	9°22657	74	9°23283	76	10°76717	9°99375	18
43	9°22731	74	9°23359	76	10°76641	9°99372	17
44	9°22805	73	9°23435	75	10°76565	9°99370	16
45	9°22878	74	9°23510	76	10°76490	9°99368	15
46	9°22952	73	9°23586	75	10°76414	9°99366	14
47	9°23025	73	9°23661	76	10°76339	9°99364	13
48	9°23098	73	9°23737	75	10°76263	9°99362	12
49	9°23171	73	9°23812	75	10°76188	9°99359	11
50	9°23244	73	9°23887	75	10°76113	9°99357	10
51	9°23317	73	9°23962	75	10°76038	9°99355	9
52	9°23390	72	9°24037	75	10°75963	9°99353	8
53	9°23462	73	9°24112	74	10°75888	9°99351	7
54	9°23535	72	9°24186	75	10°75814	9°99348	6
55	9°23607	72	9°24261	74	10°75739	9°99346	5
56	9°23679	73	9°24335	75	10°75665	9°99344	4
57	9°23752	71	9°24410	74	10°75590	9°99342	3
58	9°23823	72	9°24484	74	10°75516	9°99340	2
59	9°23895	72	9°24558	74	10°75442	9°99337	1
60	9°23967		9°24632		10°75368	9°99335	0
/	Cosine.		Cotang.		Tang.	Sine.	/

80°

10°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9'23967	72	9'24632	74	10'75368	9'99335	80
1	9'24039	71	9'24706	73	10'75294	9'99333	59
2	9'24110	71	9'24779	74	10'75221	9'99331	58
3	9'24181	72	9'24853	73	10'75147	9'99328	57
4	9'24253	71	9'24926	74	10'75074	9'99326	56
5	9'24324	71	9'25000	73	10'75000	9'99324	55
6	9'24395	71	9'25073	73	10'74927	9'99322	54
7	9'24466	70	9'25146	73	10'74854	9'99319	53
8	9'24536	71	9'25219	73	10'74781	9'99317	52
9	9'24607	70	9'25292	73	10'74708	9'99315	51
10	9'24677	71	9'25365	72	10'74635	9'99313	50
11	9'24748	70	9'25437	73	10'74563	9'99310	49
12	9'24818	70	9'25510	72	10'74490	9'99308	48
13	9'24888	70	9'25582	73	10'74418	9'99306	47
14	9'24958	70	9'25655	72	10'74345	9'99304	46
15	9'25028	70	9'25727	72	10'74273	9'99301	45
16	9'25098	70	9'25799	72	10'74201	9'99299	44
17	9'25168	69	9'25871	72	10'74129	9'99297	43
18	9'25237	70	9'25943	72	10'74057	9'99294	42
19	9'25307	69	9'26015	71	10'73985	9'99292	41
20	9'25376	69	9'26086	72	10'73914	9'99290	40
21	9'25445	69	9'26158	71	10'73842	9'99288	39
22	9'25514	69	9'26229	72	10'73771	9'99285	38
23	9'25583	69	9'26301	71	10'73699	9'99283	37
24	9'25652	69	9'26372	71	10'73628	9'99281	36
25	9'25721	69	9'26443	71	10'73557	9'99278	35
26	9'25790	68	9'26514	71	10'73486	9'99276	34
27	9'25858	69	9'26585	70	10'73415	9'99274	33
28	9'25927	68	9'26655	71	10'73345	9'99271	32
29	9'25995	68	9'26726	71	10'73274	9'99269	31
30	9'26063		9'26797		10'73203	9'99267	30
/	Cosine.		Cotang.		Tang.	Sine.	/

10°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9'26063	68	9'26797	70	10'73203	9'99267	30
31	9'26131	68	9'26867	70	10'73133	9'99264	29
32	9'26199	68	9'26937	71	10'73063	9'99262	28
33	9'26267	68	9'27008	70	10'72992	9'99260	27
34	9'26335	68	9'27078	70	10'72922	9'99257	26
35	9'26403	67	9'27148	70	10'72852	9'99255	25
36	9'26470	68	9'27218	70	10'72782	9'99252	24
37	9'26538	67	9'27288	69	10'72712	9'99250	23
38	9'26605	67	9'27357	70	10'72643	9'99248	22
39	9'26672	67	9'27427	69	10'72573	9'99245	21
40	9'26739	67	9'27496	70	10'72504	9'99243	20
41	9'26806	67	9'27566	69	10'72434	9'99241	19
42	9'26873	67	9'27635	69	10'72365	9'99238	18
43	9'26940	67	9'27704	69	10'72296	9'99236	17
44	9'27007	66	9'27773	69	10'72227	9'99233	16
45	9'27073	67	9'27842	69	10'72158	9'99231	15
46	9'27140	66	9'27911	69	10'72089	9'99229	14
47	9'27206	67	9'27980	69	10'72020	9'99226	13
48	9'27273	66	9'28049	68	10'71951	9'99224	12
49	9'27339	66	9'28117	69	10'71883	9'99221	11
50	9'27405	66	9'28186	68	10'71814	9'99219	10
51	9'27471	66	9'28254	69	10'71746	9'99217	9
52	9'27537	65	9'28323	68	10'71677	9'99214	8
53	9'27602	66	9'28391	68	10'71609	9'99212	7
54	9'27668	66	9'28459	68	10'71541	9'99209	6
55	9'27734	65	9'28527	68	10'71473	9'99207	5
56	9'27799	65	9'28595	67	10'71405	9'99204	4
57	9'27864	66	9'28662	68	10'71338	9'99202	3
58	9'27930	65	9'28730	68	10'71270	9'99200	2
59	9'27995	65	9'28798	67	10'71202	9'99197	1
60	9'28060		9'28865		10'71135	9'99195	0
/	Cosine.		Cotang.		Tang.	Sine.	/

11°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9°28060		9°28865		10°71135	9°99195	80
1	9°28125	65	9°28933	68	10°71067	9°99192	59
2	9°28190	65	9°29000	67	10°71000	9°99190	58
3	9°28254	64	9°29067	67	10°70933	9°99187	57
4	9°28319	65	9°29134	67	10°70866	9°99185	56
5	9°28384	65	9°29201	67	10°70799	9°99182	55
6	9°28448	64	9°29268	67	10°70732	9°99180	54
		64		67			
7	9°28512		9°29335		10°70665	9°99177	53
8	9°28577	65	9°29402	67	10°70598	9°99175	52
9	9°28641	64	9°29468	66	10°70532	9°99172	51
10	9°28705	64	9°29535	67	10°70465	9°99170	50
11	9°28769	64	9°29601	66	10°70399	9°99167	49
12	9°28833	64	9°29668	67	10°70332	9°99165	48
		63		66			
13	9°28896		9°29734		10°70266	9°99162	47
14	9°28960	64	9°29800	66	10°70200	9°99160	46
15	9°29024	64	9°29866	66	10°70134	9°99157	45
16	9°29087	63	9°29932	66	10°70068	9°99155	44
17	9°29150	63	9°29998	66	10°70002	9°99152	43
18	9°29214	64	9°30064	66	10°69936	9°99150	42
		63		66			
19	9°29277		9°30130		10°69870	9°99147	41
20	9°29340	63	9°30195	65	10°69805	9°99145	40
21	9°29403	63	9°30261	66	10°69739	9°99142	39
22	9°29466	63	9°30326	65	10°69674	9°99140	38
23	9°29529	63	9°30391	65	10°69609	9°99137	37
24	9°29591	62	9°30457	66	10°69543	9°99135	36
		63		65			
25	9°29654		9°30522		10°69478	9°99132	35
26	9°29716	62	9°30587	65	10°69413	9°99130	34
27	9°29779	63	9°30652	65	10°69348	9°99127	33
28	9°29841	62	9°30717	65	10°69283	9°99124	32
29	9°29903	62	9°30782	65	10°69218	9°99122	31
30	9°29966	63	9°30846	64	10°69154	9°99119	30
/	Cosine.		Cotang.		Tang.	Sine.	/

11°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9°29966		9°30846		10°69154	9°99119	30
31	9°30028	62	9°30911	65	10°69089	9°99117	29
32	9°30090	62	9°30975	64	10°69025	9°99114	28
33	9°30151	61	9°31040	65	10°68960	9°99112	27
34	9°30213	62	9°31104	64	10°68896	9°99109	26
35	9°30275	62	9°31168	64	10°68832	9°99106	25
36	9°30336	61	9°31233	65	10°68767	9°99104	24
		62		64			
37	9°30398		9°31297		10°68703	9°99101	23
38	9°30459	61	9°31361	64	10°68639	9°99099	22
39	9°30521	62	9°31425	64	10°68575	9°99096	21
40	9°30582	61	9°31489	64	10°68511	9°99093	20
41	9°30643	61	9°31552	63	10°68448	9°99091	19
42	9°30704	61	9°31616	64	10°68384	9°99088	18
		61		63			
43	9°30765		9°31679		10°68321	9°99086	17
44	9°30826	61	9°31743	64	10°68257	9°99083	16
45	9°30887	61	9°31806	63	10°68194	9°99080	15
46	9°30947	60	9°31870	64	10°68130	9°99078	14
47	9°31008	61	9°31933	63	10°68067	9°99075	13
48	9°31068	60	9°31996	63	10°68004	9°99072	12
		61		63			
49	9°31129		9°32059		10°67941	9°99070	11
50	9°31189	60	9°32122	63	10°67878	9°99067	10
51	9°31250	61	9°32185	63	10°67815	9°99064	9
52	9°31310	60	9°32248	63	10°67752	9°99062	8
53	9°31370	60	9°32311	63	10°67689	9°99059	7
54	9°31430	60	9°32373	62	10°67627	9°99056	6
		60		63			
55	9°31490		9°32436		10°67564	9°99054	5
56	9°31549	59	9°32498	62	10°67502	9°99051	4
57	9°31609	60	9°32561	63	10°67439	9°99048	3
58	9°31669	60	9°32623	62	10°67377	9°99046	2
59	9°31728	59	9°32685	62	10°67315	9°99043	1
60	9°31788	60	9°32747	62	10°67253	9°99040	0
/	Cosine.		Cotang.		Tang.	Sine.	/

12°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9'31788		9'32747		10'67253	9'99040	60
1	9'31847	59	9'32810	63	10'67190	9'99038	59
2	9'31907	60	9'32872	62	10'67128	9'99035	58
3	9'31966	59	9'32933	61	10'67067	9'99032	57
4	9'32025	59	9'32995	62	10'67005	9'99030	56
5	9'32084	59	9'33057	62	10'66943	9'99027	55
6	9'32143	59	9'33119	61	10'66881	9'99024	54
7	9'32202		9'33180		10'66820	9'99022	53
8	9'32261	59	9'33242	62	10'66758	9'99019	52
9	9'32319	58	9'33303	61	10'66697	9'99016	51
10	9'32378	59	9'33365	62	10'66635	9'99013	50
11	9'32437	59	9'33426	61	10'66574	9'99011	49
12	9'32495	58	9'33487	61	10'66513	9'99008	48
13	9'32553		9'33548		10'66452	9'99005	47
14	9'32612	59	9'33609	61	10'66391	9'99002	46
15	9'32670	58	9'33670	61	10'66330	9'99000	45
16	9'32728	58	9'33731	61	10'66269	9'98997	44
17	9'32786	58	9'33792	61	10'66208	9'98994	43
18	9'32844	58	9'33853	60	10'66147	9'98991	42
19	9'32902		9'33913		10'66087	9'98989	41
20	9'32960	58	9'33974	61	10'66026	9'98986	40
21	9'33018	58	9'34034	60	10'65966	9'98983	39
22	9'33075	57	9'34095	61	10'65905	9'98980	38
23	9'33133	58	9'34155	60	10'65845	9'98978	37
24	9'33190	57	9'34215	60	10'65785	9'98975	36
25	9'33248	58	9'34276	61	10'65724	9'98972	35
26	9'33305	57	9'34336	60	10'65664	9'98969	34
27	9'33362	57	9'34396	60	10'65604	9'98967	33
28	9'33420	58	9'34456	60	10'65544	9'98964	32
29	9'33477	57	9'34516	60	10'65484	9'98961	31
30	9'33534	57	9'34576	60	10'65424	9'98958	30
/	Cosine.		Cotang.		Tang.	Sine.	/

12°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9°33534		9°34576		10°65424	9°98958	30
31	9°33591	57	9°34635	59	10°65365	9°98955	29
32	9°33647	56	9°34695	60	10°65305	9°98953	28
33	9°33704	57	9°34755	60	10°65245	9°98950	27
34	9°33761	57	9°34814	59	10°65186	9°98947	26
35	9°33818	57	9°34874	60	10°65126	9°98944	25
36	9°33874	56	9°34933	59	10°65067	9°98941	24
		57		59			
37	9°33931		9°34992		10°65008	9°98938	23
38	9°33987	56	9°35051	59	10°64949	9°98936	22
39	9°34043	56	9°35111	60	10°64889	9°98933	21
40	9°34100	57	9°35170	59	10°64830	9°98930	20
41	9°34156	56	9°35229	59	10°64771	9°98927	19
42	9°34212	56	9°35288	59	10°64712	9°98924	18
		56		59			
43	9°34268		9°35347		10°64653	9°98921	17
44	9°34324	56	9°35405	58	10°64595	9°98919	16
45	9°34380	56	9°35464	59	10°64536	9°98916	15
46	9°34436	56	9°35523	59	10°64477	9°98913	14
47	9°34491	55	9°35581	58	10°64419	9°98910	13
48	9°34547	56	9°35640	59	10°64360	9°98907	12
		55		58			
49	9°34602		9°35698		10°64302	9°98904	11
50	9°34658	56	9°35757	59	10°64243	9°98901	10
51	9°34713	55	9°35815	58	10°64185	9°98898	9
52	9°34769	56	9°35873	58	10°64127	9°98896	8
53	9°34824	55	9°35931	58	10°64069	9°98893	7
54	9°34879	55	9°35989	58	10°64011	9°98890	6
		55		58			
55	9°34934		9°36047		10°63953	9°98887	5
56	9°34989	55	9°36105	58	10°63895	9°98884	4
57	9°35044	55	9°36163	58	10°63837	9°98881	3
58	9°35099	55	9°36221	58	10°63779	9°98878	2
59	9°35154	55	9°36279	58	10°63721	9°98875	1
60	9°35209	55	9°36336	57	10°63664	9°98872	0
/	Cosine.		Cotang.		Tang.	Sine.	/

13°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9'35209		9'36336		10'63664	9'98872	60
1	9'35263	54	9'36394	58	10'63606	9'98869	59
2	9'35318	55	9'36452	58	10'63548	9'98867	58
3	9'35373	55	9'36509	57	10'63491	9'98864	57
4	9'35427	54	9'36566	57	10'63434	9'98861	56
5	9'35481	54	9'36624	58	10'63376	9'98858	55
6	9'35536	55	9'36681	57	10'63319	9'98855	54
		54		57			
7	9'35590		9'36738		10'63262	9'98852	53
8	9'35644	54	9'36795	57	10'63205	9'98849	52
9	9'35698	54	9'36852	57	10'63148	9'98846	51
10	9'35752	54	9'36909	57	10'63091	9'98843	50
11	9'35806	54	9'36966	57	10'63034	9'98840	49
12	9'35860	54	9'37023	57	10'62977	9'98837	48
		54		57			
13	9'35914		9'37080		10'62920	9'98834	47
14	9'35968	54	9'37137	57	10'62863	9'98831	46
15	9'36022	54	9'37193	56	10'62807	9'98828	45
16	9'36075	53	9'37250	57	10'62750	9'98825	44
17	9'36129	54	9'37306	56	10'62694	9'98822	43
18	9'36182	53	9'37363	57	10'62637	9'98819	42
		54		56			
19	9'36236		9'37419		10'62581	9'98816	41
20	9'36289	53	9'37476	57	10'62524	9'98813	40
21	9'36342	53	9'37532	56	10'62468	9'98810	39
22	9'36395	53	9'37588	56	10'62412	9'98807	38
23	9'36449	54	9'37644	56	10'62356	9'98804	37
24	9'36502	53	9'37700	56	10'62300	9'98801	36
		53		56			
25	9'36555		9'37756		10'62244	9'98798	35
26	9'36608	53	9'37812	56	10'62188	9'98795	34
27	9'36660	52	9'37868	56	10'62132	9'98792	33
28	9'36713	53	9'37924	56	10'62076	9'98789	32
29	9'36766	53	9'37980	56	10'62020	9'98786	31
30	9'36819	53	9'38035	55	10'61965	9'98783	30
/	Cosine.		Cotang.		Tang.	Sine.	/

13°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9'36819		9'38035		10'61965	9'98783	30
31	9'36871	52	9'38091	56	10'61909	9'98780	29
32	9'36924	53	9'38147	56	10'61853	9'98777	28
33	9'36976	52	9'38202	55	10'61798	9'98774	27
34	9'37028	52	9'38257	55	10'61743	9'98771	26
35	9'37081	53	9'38313	56	10'61687	9'98768	25
36	9'37133	52	9'38368	55	10'61632	9'98765	24
		52		55			
37	9'37185		9'38423		10'61577	9'98762	23
38	9'37237	52	9'38479	56	10'61521	9'98759	22
39	9'37289	52	9'38534	55	10'61466	9'98756	21
40	9'37341	52	9'38589	55	10'61411	9'98753	20
41	9'37393	52	9'38644	55	10'61356	9'98750	19
42	9'37445	52	9'38699	55	10'61301	9'98746	18
		52		55			
43	9'37497		9'38754		10'61246	9'98743	17
44	9'37549	52	9'38808	54	10'61192	9'98740	16
45	9'37600	51	9'38863	55	10'61137	9'98737	15
46	9'37652	52	9'38918	55	10'61082	9'98734	14
47	9'37703	51	9'38972	54	10'61028	9'98731	13
48	9'37755	52	9'39027	55	10'60973	9'98728	12
		51		55			
49	9'37806		9'39082		10'60918	9'98725	11
50	9'37858	52	9'39136	54	10'60864	9'98722	10
51	9'37909	51	9'39190	54	10'60810	9'98719	9
52	9'37960	51	9'39245	55	10'60755	9'98715	8
53	9'38011	51	9'39299	54	10'60701	9'98712	7
54	9'38062	51	9'39353	54	10'60647	9'98709	6
		51		54			
55	9'38113		9'39407		10'60593	9'98706	5
56	9'38164	51	9'39461	54	10'60539	9'98703	4
57	9'38215	51	9'39515	54	10'60485	9'98700	3
58	9'38266	51	9'39569	54	10'60431	9'98697	2
59	9'38317	51	9'39623	54	10'60377	9'98694	1
60	9'38368	51	9'39677	54	10'60323	9'98690	0
		51		54			
/	Cosine.		Cotang.		Tang.	Sine.	/

14°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9'38368		9'39677		10'60323	9'98690	60
1	9'38418	50	9'39731	54	10'60269	9'98687	59
2	9'38469	51	9'39785	54	10'60215	9'98684	58
3	9'38519	50	9'39838	53	10'60162	9'98681	57
4	9'38570	51	9'39892	54	10'60108	9'98678	56
5	9'38620	50	9'39945	53	10'60055	9'98675	55
6	9'38670	50	9'39999	54	10'60001	9'98671	54
		51		53			
7	9'38721		9'40052		10'59948	9'98668	53
8	9'38771	50	9'40106	54	10'59894	9'98665	52
9	9'38821	50	9'40159	53	10'59841	9'98662	51
10	9'38871	50	9'40212	53	10'59788	9'98659	50
11	9'38921	50	9'40266	54	10'59734	9'98656	49
12	9'38971	50	9'40319	53	10'59681	9'98652	48
		50		53			
13	9'39021		9'40372		10'59628	9'98649	47
14	9'39071	50	9'40425	53	10'59575	9'98646	46
15	9'39121	50	9'40478	53	10'59522	9'98643	45
16	9'39170	49	9'40531	53	10'59469	9'98640	44
17	9'39220	50	9'40584	53	10'59416	9'98636	43
18	9'39270	50	9'40636	52	10'59364	9'98633	42
		49		53			
19	9'39319		9'40689		10'59311	9'98630	41
20	9'39369	50	9'40742	53	10'59258	9'98627	40
21	9'39418	49	9'40795	53	10'59205	9'98623	39
22	9'39467	49	9'40847	52	10'59153	9'98620	38
23	9'39517	50	9'40900	53	10'59100	9'98617	37
24	9'39566	49	9'40952	52	10'59048	9'98614	36
		49		53			
25	9'39615		9'41005		10'58995	9'98610	35
26	9'39664	49	9'41057	52	10'58943	9'98607	34
27	9'39713	49	9'41109	52	10'58891	9'98604	33
28	9'39762	49	9'41161	52	10'58839	9'98601	32
29	9'39811	49	9'41214	53	10'58786	9'98597	31
30	9'39860	49	9'41266	52	10'58734	9'98594	30
/	Cosine.		Cotang.		Tang.	Sine.	/

14°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9'39860		9'41266		10'58734	9'98594	30
31	9'39909	49	9'41318	52	10'58682	9'98591	29
32	9'39958	49	9'41370	52	10'58630	9'98588	28
33	9'40006	48	9'41422	52	10'58578	9'98584	27
34	9'40055	49	9'41474	52	10'58526	9'98581	26
35	9'40103	48	9'41526	52	10'58474	9'98578	25
36	9'40152	49	9'41578	52	10'58422	9'98574	24
		48		51			
37	9'40200		9'41629		10'58371	9'98571	23
38	9'40249	49	9'41681	52	10'58319	9'98568	22
39	9'40297	48	9'41733	52	10'58267	9'98565	21
40	9'40346	49	9'41784	51	10'58216	9'98561	20
41	9'40394	48	9'41836	52	10'58164	9'98558	19
42	9'40442	48	9'41887	51	10'58113	9'98555	18
		48		52			
43	9'40490		9'41939		10'58061	9'98551	17
44	9'40538	48	9'41990	51	10'58010	9'98548	16
45	9'40586	48	9'42041	51	10'57959	9'98545	15
46	9'40634	48	9'42093	52	10'57907	9'98541	14
47	9'40682	48	9'42144	51	10'57856	9'98538	13
48	9'40730	48	9'42195	51	10'57805	9'98535	12
		48		51			
49	9'40778		9'42246		10'57754	9'98531	11
50	9'40825	47	9'42297	51	10'57703	9'98528	10
51	9'40873	48	9'42348	51	10'57652	9'98525	9
52	9'40921	48	9'42399	51	10'57601	9'98521	8
53	9'40968	47	9'42450	51	10'57550	9'98518	7
54	9'41016	48	9'42501	51	10'57499	9'98515	6
		47		51			
55	9'41063		9'42552		10'57448	9'98511	5
56	9'41111	48	9'42603	51	10'57397	9'98508	4
57	9'41158	47	9'42653	50	10'57347	9'98505	3
58	9'41205	47	9'42704	51	10'57296	9'98501	2
59	9'41252	47	9'42755	51	10'57245	9'98498	1
60	9'41300	48	9'42805	50	10'57195	9'98494	0
/	Cosine.		Cotang.		Tang.	Sine.	/

75°

15°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9'41300		9'42805		10'57195	9'98494	60
1	9'41347	47	9'42856	51	10'57144	9'98491	59
2	9'41394	47	9'42906	50	10'57094	9'98488	58
3	9'41441	47	9'42957	51	10'57043	9'98484	57
4	9'41488	47	9'43007	50	10'56993	9'98481	56
5	9'41535	47	9'43057	50	10'56943	9'98477	55
6	9'41582	47	9'43108	51	10'56892	9'98474	54
		46		50			
7	9'41628		9'43158		10'56842	9'98471	53
8	9'41675	47	9'43208	50	10'56792	9'98467	52
9	9'41722	47	9'43258	50	10'56742	9'98464	51
10	9'41768	46	9'43308	50	10'56692	9'98460	50
11	9'41815	47	9'43358	50	10'56642	9'98457	49
12	9'41861	46	9'43408	50	10'56592	9'98453	48
		47		50			
13	9'41908		9'43458		10'56542	9'98450	47
14	9'41954	46	9'43508	50	10'56492	9'98447	46
15	9'42001	47	9'43558	50	10'56442	9'98443	45
16	9'42047	46	9'43607	49	10'56393	9'98440	44
17	9'42093	46	9'43657	50	10'56343	9'98436	43
18	9'42140	47	9'43707	50	10'56293	9'98433	42
		46		49			
19	9'42186		9'43756		10'56244	9'98429	41
20	9'42232	46	9'43806	50	10'56194	9'98426	40
21	9'42278	46	9'43855	49	10'56145	9'98422	39
22	9'42324	46	9'43905	50	10'56095	9'98419	38
23	9'42370	46	9'43954	49	10'56046	9'98415	37
24	9'42416	46	9'44004	50	10'55996	9'98412	36
		45		49			
25	9'42461		9'44053		10'55947	9'98409	35
26	9'42507	46	9'44102	49	10'55898	9'98405	34
27	9'42553	46	9'44151	49	10'55849	9'98402	33
28	9'42599	46	9'44201	50	10'55799	9'98398	32
29	9'42644	45	9'44250	49	10'55750	9'98395	31
30	9'42690	46	9'44299	49	10'55701	9'98391	30
/	Cosine.		Cotang.		Tang.	Sine.	/

74°

15°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9'42690		9'44299		10'55701	9'98391	30
31	9'42735	45	9'44348	49	10'55652	9'98388	29
32	9'42781	46	9'44397	49	10'55603	9'98384	28
33	9'42826	45	9'44446	49	10'55554	9'98381	27
34	9'42872	46	9'44495	49	10'55505	9'98377	26
35	9'42917	45	9'44544	49	10'55456	9'98373	25
36	9'42962	45	9'44592	48	10'55408	9'98370	24
		46		49			
37	9'43008		9'44641		10'55359	9'98366	23
38	9'43053	45	9'44690	49	10'55310	9'98363	22
39	9'43098	45	9'44738	48	10'55262	9'98359	21
40	9'43143	45	9'44787	49	10'55213	9'98356	20
41	9'43188	45	9'44836	49	10'55164	9'98352	19
42	9'43233	45	9'44884	48	10'55116	9'98349	18
		45		49			
43	9'43278		9'44933		10'55067	9'98345	17
44	9'43323	45	9'44981	48	10'55019	9'98342	16
45	9'43367	44	9'45029	48	10'54971	9'98338	15
46	9'43412	45	9'45078	49	10'54922	9'98334	14
47	9'43457	45	9'45126	48	10'54874	9'98331	13
48	9'43502	45	9'45174	48	10'54826	9'98327	12
		44		48			
49	9'43546		9'45222		10'54778	9'98324	11
50	9'43591	45	9'45271	49	10'54729	9'98320	10
51	9'43635	44	9'45319	48	10'54681	9'98317	9
52	9'43680	45	9'45367	48	10'54633	9'98313	8
53	9'43724	44	9'45415	48	10'54585	9'98309	7
54	9'43769	45	9'45463	48	10'54537	9'98306	6
		44		48			
55	9'43813		9'45511		10'54489	9'98302	5
56	9'43857	44	9'45559	48	10'54441	9'98299	4
57	9'43901	44	9'45606	47	10'54394	9'98295	3
58	9'43946	45	9'45654	48	10'54346	9'98291	2
59	9'43990	44	9'45702	48	10'54298	9'98288	1
60	9'44034	44	9'45750	48	10'54250	9'98284	0
/	Cosine.		Cotang.		Tang.	Sine.	/

16°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9'44034		9'45750		10'54250	9'98284	60
1	9'44078	44	9'45797	47	10'54203	9'98281	59
2	9'44122	44	9'45845	48	10'54155	9'98277	58
3	9'44166	44	9'45892	47	10'54108	9'98273	57
4	9'44210	44	9'45940	48	10'54060	9'98270	56
5	9'44253	43	9'45987	47	10'54013	9'98266	55
6	9'44297	44	9'46035	48	10'53965	9'98262	54
		44		47			
7	9'44341		9'46082		10'53918	9'98259	53
8	9'44385	44	9'46130	48	10'53870	9'98255	52
9	9'44428	43	9'46177	47	10'53823	9'98251	51
10	9'44472	44	9'46224	47	10'53776	9'98248	50
11	9'44516	44	9'46271	47	10'53729	9'98244	49
12	9'44559	43	9'46319	48	10'53681	9'98240	48
		43		47			
13	9'44602		9'46366		10'53634	9'98237	47
14	9'44646	44	9'46413	47	10'53587	9'98233	46
15	9'44689	43	9'46460	47	10'53540	9'98229	45
16	9'44733	44	9'46507	47	10'53493	9'98226	44
17	9'44776	43	9'46554	47	10'53446	9'98222	43
18	9'44819	43	9'46601	47	10'53399	9'98218	42
		43		47			
19	9'44862		9'46648		10'53352	9'98215	41
20	9'44905	43	9'46694	46	10'53306	9'98211	40
21	9'44948	43	9'46741	47	10'53259	9'98207	39
22	9'44992	44	9'46788	47	10'53212	9'98204	38
23	9'45035	43	9'46835	47	10'53165	9'98200	37
24	9'45077	42	9'46881	46	10'53119	9'98196	36
		43		47			
25	9'45120		9'46928		10'53072	9'98192	35
26	9'45163	43	9'46975	47	10'53025	9'98189	34
27	9'45206	43	9'47021	46	10'52979	9'98185	33
28	9'45249	43	9'47068	47	10'52932	9'98181	32
29	9'45292	43	9'47114	46	10'52886	9'98177	31
30	9'45334	42	9'47160	46	10'52840	9'98174	30
/	Cosine.		Cotang.		Tang.	Sine.	/

16°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9'45334		9'47160		10'52840	9'98174	30
31	9'45377	43	9'47207	47	10'52793	9'98170	29
32	9'45419	42	9'47253	46	10'52747	9'98166	28
33	9'45462	43	9'47299	46	10'52701	9'98162	27
34	9'45504	42	9'47346	47	10'52654	9'98159	26
35	9'45547	43	9'47392	46	10'52608	9'98155	25
36	9'45589	42	9'47438	46	10'52562	9'98151	24
		43		46			
37	9'45632	42	9'47484	46	10'52516	9'98147	23
38	9'45674	42	9'47530	46	10'52470	9'98144	22
39	9'45716	42	9'47576	46	10'52424	9'98140	21
40	9'45758	42	9'47622	46	10'52378	9'98136	20
41	9'45801	43	9'47668	46	10'52332	9'98132	19
42	9'45843	42	9'47714	46	10'52286	9'98129	18
		42		46			
43	9'45885	42	9'47760	46	10'52240	9'98125	17
44	9'45927	42	9'47806	46	10'52194	9'98121	16
45	9'45969	42	9'47852	46	10'52148	9'98117	15
46	9'46011	42	9'47897	45	10'52103	9'98113	14
47	9'46053	42	9'47943	46	10'52057	9'98110	13
48	9'46095	41	9'47989	46	10'52011	9'98106	12
		41		46			
49	9'46136	42	9'48035	45	10'51965	9'98102	11
50	9'46178	42	9'48080	46	10'51920	9'98098	10
51	9'46220	42	9'48126	45	10'51874	9'98094	9
52	9'46262	41	9'48171	46	10'51829	9'98090	8
53	9'46303	42	9'48217	45	10'51783	9'98087	7
54	9'46345	41	9'48262	45	10'51738	9'98083	6
		41		45			
55	9'46386	42	9'48307	46	10'51693	9'98079	5
56	9'46428	41	9'48353	45	10'51647	9'98075	4
57	9'46469	42	9'48398	45	10'51602	9'98071	3
58	9'46511	41	9'48443	46	10'51557	9'98067	2
59	9'46552	42	9'48489	45	10'51511	9'98063	1
60	9'46594		9'48534		10'51466	9'98060	0
/	Cosine.		Cotang.		Tang.	Sine.	/

17°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9'46594		9'48534		10'51466	9'98060	60
1	9'46635	41	9'48579	45	10'51421	9'98056	59
2	9'46676	41	9'48624	45	10'51376	9'98052	58
3	9'46717	41	9'48669	45	10'51331	9'98048	57
4	9'46758	41	9'48714	45	10'51286	9'98044	56
5	9'46800	42	9'48759	45	10'51241	9'98040	55
6	9'46841	41	9'48804	45	10'51196	9'98036	54
7	9'46882	41	9'48849	45	10'51151	9'98032	53
8	9'46923	41	9'48894	45	10'51106	9'98029	52
9	9'46964	41	9'48939	45	10'51061	9'98025	51
10	9'47005	40	9'48984	45	10'51016	9'98021	50
11	9'47045	41	9'49029	44	10'50971	9'98017	49
12	9'47086	41	9'49073	45	10'50927	9'98013	48
13	9'47127	41	9'49118	45	10'50882	9'98009	47
14	9'47168	41	9'49163	44	10'50837	9'98005	46
15	9'47209	40	9'49207	45	10'50793	9'98001	45
16	9'47249	41	9'49252	44	10'50748	9'97997	44
17	9'47290	40	9'49296	45	10'50704	9'97993	43
18	9'47330	41	9'49341	44	10'50659	9'97989	42
19	9'47371	40	9'49385	45	10'50615	9'97986	41
20	9'47411	41	9'49430	44	10'50570	9'97982	40
21	9'47452	40	9'49474	45	10'50526	9'97978	39
22	9'47492	41	9'49519	44	10'50481	9'97974	38
23	9'47533	40	9'49563	44	10'50437	9'97970	37
24	9'47573	40	9'49607	45	10'50393	9'97966	36
25	9'47613	41	9'49652	44	10'50348	9'97962	35
26	9'47654	40	9'49696	44	10'50304	9'97958	34
27	9'47694	40	9'49740	44	10'50260	9'97954	33
28	9'47734	40	9'49784	44	10'50216	9'97950	32
29	9'47774	40	9'49828	44	10'50172	9'97946	31
30	9'47814	40	9'49872	44	10'50128	9'97942	30
/	Cosine.		Cotang.		Tang.	Sine.	/

17°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
30	9'47814		9'49872		10'50128	9'97942	30
31	9'47854	40	9'49916	44	10'50084	9'97938	29
32	9'47894	40	9'49960	44	10'50040	9'97934	28
33	9'47934	40	9'50004	44	10'49996	9'97930	27
34	9'47974	40	9'50048	44	10'49952	9'97926	26
35	9'48014	40	9'50092	44	10'49908	9'97922	25
36	9'48054	40	9'50136	44	10'49864	9'97918	24
37	9'48094		9'50180		10'49820	9'97914	23
38	9'48133	39	9'50223	43	10'49777	9'97910	22
39	9'48173	40	9'50267	44	10'49733	9'97906	21
40	9'48213	40	9'50311	44	10'49689	9'97902	20
41	9'48252	39	9'50355	44	10'49645	9'97898	19
42	9'48292	40	9'50398	43	10'49602	9'97894	18
43	9'48332		9'50442		10'49558	9'97890	17
44	9'48371	39	9'50485	43	10'49515	9'97886	16
45	9'48411	40	9'50529	44	10'49471	9'97882	15
46	9'48450	39	9'50572	43	10'49428	9'97878	14
47	9'48490	40	9'50616	44	10'49384	9'97874	13
48	9'48529	39	9'50659	43	10'49341	9'97870	12
49	9'48568	39	9'50703	43	10'49297	9'97866	11
50	9'48607	40	9'50746	43	10'49254	9'97861	10
51	9'48647	39	9'50789	44	10'49211	9'97857	9
52	9'48686	39	9'50833	43	10'49167	9'97853	8
53	9'48725	39	9'50876	43	10'49124	9'97849	7
54	9'48764	39	9'50919	43	10'49081	9'97845	6
55	9'48803		9'50962		10'49038	9'97841	5
56	9'48842	39	9'51005	43	10'48995	9'97837	4
57	9'48881	39	9'51048	43	10'48952	9'97833	3
58	9'48920	39	9'51092	44	10'48908	9'97829	2
59	9'48959	39	9'51135	43	10'48865	9'97825	1
60	9'48998	39	9'51178	43	10'48822	9'97821	0
/	Cosine.		Cotang.		Tang.	Sine.	/

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	/
0	9'48998		9'51178		10'48822	9'97821	60
1	9'49037	39	9'51221	43	10'48779	9'97817	59
2	9'49076	39	9'51264	43	10'48736	9'97812	58
3	9'49115	39	9'51306	42	10'48694	9'97808	57
4	9'49153	38	9'51349	43	10'48651	9'97804	56
5	9'49192	39	9'51392	43	10'48608	9'97800	55
6	9'49231	39	9'51435	43	10'48565	9'97796	54
		38		43			
7	9'49269		9'51478		10'48522	9'97792	53
8	9'49308	39	9'51520	42	10'48480	9'97788	52
9	9'49347	39	9'51563	43	10'48437	9'97784	51
10	9'49385	38	9'51606	43	10'48394	9'97779	50
11	9'49424	39	9'51648	42	10'48352	9'97775	49
12	9'49462	38	9'51691	43	10'48309	9'97771	48
		38		43			
13	9'49500		9'51734		10'48266	9'97767	47
14	9'49539	39	9'51776	42	10'48224	9'97763	46
15	9'49577	38	9'51819	43	10'48181	9'97759	45
16	9'49615	38	9'51861	42	10'48139	9'97754	44
17	9'49654	39	9'51903	42	10'48097	9'97750	43
18	9'49692	38	9'51946	43	10'48054	9'97746	42
		38		42			
19	9'49730		9'51988		10'48012	9'97742	41
20	9'49768	38	9'52031	43	10'47969	9'97738	40
21	9'49806	38	9'52073	42	10'47927	9'97734	39
22	9'49844	38	9'52115	42	10'47885	9'97729	38
23	9'49882	38	9'52157	42	10'47843	9'97725	37
24	9'49920	38	9'52200	43	10'47800	9'97721	36
		38		42			
25	9'49958		9'52242		10'47758	9'97717	35
26	9'49996	38	9'52284	42	10'47716	9'97713	34
27	9'50034	38	9'52326	42	10'47674	9'97708	33
28	9'50072	38	9'52368	42	10'47632	9'97704	32
29	9'50110	38	9'52410	42	10'47590	9'97700	31
30	9'50148	38	9'52452	42	10'47548	9'97696	30
/	Cosine.		Cotang.		Tang.	Sine.	/

18°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'50148		9'52452	42	10'47548	9'97696		30
31	9'50185	37	9'52494	42	10'47506	9'97691	5	29
32	9'50223	38	9'52536	42	10'47464	9'97687	4	28
33	9'50261	38	9'52578	42	10'47422	9'97683	4	27
34	9'50298	37	9'52620	41	10'47380	9'97679	4	26
35	9'50336	38	9'52661	42	10'47339	9'97674	5	25
36	9'50374	38	9'52703	42	10'47297	9'97670	4	24
		37		42			4	
37	9'50411	38	9'52745	42	10'47255	9'97666		23
38	9'50449	37	9'52787	42	10'47213	9'97662	4	22
39	9'50486	37	9'52829	41	10'47171	9'97657	5	21
40	9'50523	37	9'52870	41	10'47130	9'97653	4	20
41	9'50561	38	9'52912	42	10'47088	9'97649	4	19
42	9'50598	37	9'52953	41	10'47047	9'97645	4	18
		37		42			5	
43	9'50635	38	9'52995	42	10'47005	9'97640		17
44	9'50673	37	9'53037	41	10'46963	9'97636	4	16
45	9'50710	37	9'53078	41	10'46922	9'97632	4	15
46	9'50747	37	9'53120	42	10'46880	9'97628	4	14
47	9'50784	37	9'53161	41	10'46839	9'97623	5	13
48	9'50821	37	9'53202	41	10'46798	9'97619	4	12
		37		42			4	
49	9'50858	38	9'53244	41	10'46756	9'97615		11
50	9'50896	37	9'53285	42	10'46715	9'97610	5	10
51	9'50933	37	9'53327	41	10'46673	9'97606	4	9
52	9'50970	37	9'53368	41	10'46632	9'97602	4	8
53	9'51007	37	9'53409	41	10'46591	9'97597	5	7
54	9'51043	36	9'53450	41	10'46550	9'97593	4	6
		37		42			4	
55	9'51080	37	9'53492	41	10'46508	9'97589		5
56	9'51117	37	9'53533	41	10'46467	9'97584	5	4
57	9'51154	37	9'53574	41	10'46426	9'97580	4	3
58	9'51191	37	9'53615	41	10'46385	9'97576	4	2
59	9'51227	36	9'53656	41	10'46344	9'97571	5	1
60	9'51264	37	9'53697	41	10'46303	9'97567	4	0
/	Cosine.		Cotang.		Tang.	Sine.		/

71°

19°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9°51264		9°53697		10°46303	9°97567		60
1	9°51301	37	9°53738	41	10°46262	9°97563	4	59
2	9°51338	37	9°53779	41	10°46221	9°97558	5	58
3	9°51374	36	9°53820	41	10°46180	9°97554	4	57
4	9°51411	37	9°53861	41	10°46139	9°97550	4	56
5	9°51447	36	9°53902	41	10°46098	9°97545	5	55
6	9°51484	37	9°53943	41	10°46057	9°97541	4	54
		36		41			5	
7	9°51520		9°53984		10°46016	9°97536		53
8	9°51557	37	9°54025	41	10°45975	9°97532	4	52
9	9°51593	36	9°54065	40	10°45935	9°97528	4	51
10	9°51629	36	9°54106	41	10°45894	9°97523	5	50
11	9°51666	37	9°54147	41	10°45853	9°97519	4	49
12	9°51702	36	9°54187	40	10°45813	9°97515	4	48
		36		41			5	
13	9°51738		9°54228		10°45772	9°97510		47
14	9°51774	36	9°54269	41	10°45731	9°97506	4	46
15	9°51811	37	9°54309	40	10°45691	9°97501	5	45
16	9°51847	36	9°54350	41	10°45650	9°97497	4	44
17	9°51883	36	9°54390	40	10°45610	9°97492	5	43
18	9°51919	36	9°54431	41	10°45569	9°97488	4	42
		36		40			4	
19	9°51955		9°54471		10°45529	9°97484		41
20	9°51991	36	9°54512	41	10°45488	9°97479	5	40
21	9°52027	36	9°54552	40	10°45448	9°97475	4	39
22	9°52063	36	9°54593	41	10°45407	9°97470	5	38
23	9°52099	36	9°54633	40	10°45367	9°97466	4	37
24	9°52135	36	9°54673	40	10°45327	9°97461	5	36
		36		41			4	
25	9°52171		9°54714		10°45286	9°97457		35
26	9°52207	36	9°54754	40	10°45246	9°97453	4	34
27	9°52242	35	9°54794	40	10°45206	9°97448	5	33
28	9°52278	36	9°54835	41	10°45165	9°97444	4	32
29	9°52314	36	9°54875	40	10°45125	9°97439	5	31
30	9°52350	36	9°54915	40	10°45085	9°97435	4	30
/	Cosine.		Cotang.		Tang.	Sine.		/

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19°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'52350		9'54915		10'45085	9'97435		30
31	9'52385	35	9'54955	40	10'45045	9'97430	5	29
32	9'52421	36	9'54995	40	10'45005	9'97426	4	28
33	9'52456	35	9'55035	40	10'44965	9'97421	5	27
34	9'52492	36	9'55075	40	10'44925	9'97417	4	26
35	9'52527	35	9'55115	40	10'44885	9'97412	5	25
36	9'52563	36	9'55155	40	10'44845	9'97408	4	24
		35		40			5	
37	9'52598		9'55195		10'44805	9'97403		23
38	9'52634	36	9'55235	40	10'44765	9'97399	4	22
39	9'52669	35	9'55275	40	10'44725	9'97394	5	21
40	9'52705	36	9'55315	40	10'44685	9'97390	4	20
41	9'52740	35	9'55355	40	10'44645	9'97385	5	19
42	9'52775	36	9'55395	40	10'44605	9'97381	4	18
		35		39			5	
43	9'52811		9'55434		10'44566	9'97376		17
44	9'52846	35	9'55474	40	10'44526	9'97372	4	16
45	9'52881	36	9'55514	40	10'44486	9'97367	5	15
46	9'52916	35	9'55554	40	10'44446	9'97363	4	14
47	9'52951	36	9'55593	39	10'44407	9'97358	5	13
48	9'52986	35	9'55633	40	10'44367	9'97353	5	12
		35		40			4	
49	9'53021		9'55673		10'44327	9'97349		11
50	9'53056	35	9'55712	39	10'44288	9'97344	5	10
51	9'53092	36	9'55752	40	10'44248	9'97340	4	9
52	9'53126	34	9'55791	39	10'44209	9'97335	5	8
53	9'53161	35	9'55831	40	10'44169	9'97331	4	7
54	9'53196	35	9'55870	39	10'44130	9'97326	5	6
		35		40			4	
55	9'53231		9'55910		10'44090	9'97322		5
56	9'53266	35	9'55949	39	10'44051	9'97317	5	4
57	9'53301	35	9'55989	40	10'44011	9'97312	5	3
58	9'53336	35	9'56028	39	10'43972	9'97308	4	2
59	9'53370	34	9'56067	39	10'43933	9'97303	5	1
60	9'53405	35	9'56107	40	10'43893	9'97299	4	0
/	Cosine.		Cotang.		Tang.	Sine.		/

20°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9°53405		9°56107		10°43893	9°97299		60
1	9°53440	35	9°56146	39	10°43854	9°97294	5	59
2	9°53475	35	9°56185	39	10°43815	9°97289	5	58
3	9°53509	34	9°56224	39	10°43776	9°97285	4	57
4	9°53544	35	9°56264	40	10°43736	9°97280	5	56
5	9°53578	34	9°56303	39	10°43697	9°97276	4	55
6	9°53613	35	9°56342	39	10°43658	9°97271	5	54
		34		39			5	
7	9°53647		9°56381		10°43619	9°97266		53
8	9°53682	35	9°56420	39	10°43580	9°97262	4	52
9	9°53716	34	9°56459	39	10°43541	9°97257	5	51
10	9°53751	35	9°56498	39	10°43502	9°97252	5	50
11	9°53785	34	9°56537	39	10°43463	9°97248	4	49
12	9°53819	34	9°56576	39	10°43424	9°97243	5	48
		35		39			5	
13	9°53854		9°56615		10°43385	9°97238		47
14	9°53888	34	9°56654	39	10°43346	9°97234	4	46
15	9°53922	34	9°56693	39	10°43307	9°97229	5	45
16	9°53957	35	9°56732	39	10°43268	9°97224	5	44
17	9°53991	34	9°56771	39	10°43229	9°97220	4	43
18	9°54025	34	9°56810	39	10°43190	9°97215	5	42
		34		39			5	
19	9°54059		9°56849		10°43151	9°97210		41
20	9°54093	34	9°56887	38	10°43113	9°97206	4	40
21	9°54127	34	9°56926	39	10°43074	9°97201	5	39
22	9°54161	34	9°56965	39	10°43035	9°97196	5	38
23	9°54195	34	9°57004	39	10°42996	9°97192	4	37
24	9°54229	34	9°57042	38	10°42958	9°97187	5	36
		34		39			5	
25	9°54263		9°57081		10°42919	9°97182		35
26	9°54297	34	9°57120	39	10°42880	9°97178	4	34
27	9°54331	34	9°57158	38	10°42842	9°97173	5	33
28	9°54365	34	9°57197	39	10°42803	9°97168	5	32
29	9°54399	34	9°57235	38	10°42765	9°97163	5	31
30	9°54433	34	9°57274	39	10°42726	9°97159	4	30
/	Cosine.		Cotang.		Tang.	Sine.		/

69°

20°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'54433	33	9'57274	38	10'42726	9'97159	5	30
31	9'54466	34	9'57312	39	10'42688	9'97154	5	29
32	9'54500	34	9'57351	38	10'42649	9'97149	5	28
33	9'54534	34	9'57389	38	10'42611	9'97145	4	27
34	9'54567	33	9'57428	39	10'42572	9'97140	5	26
35	9'54601	34	9'57466	38	10'42534	9'97135	5	25
36	9'54635	34	9'57504	38	10'42496	9'97130	5	24
		33		39			4	
37	9'54668		9'57543	38	10'42457	9'97126		23
38	9'54702	34	9'57581	38	10'42419	9'97121	5	22
39	9'54735	33	9'57619	38	10'42381	9'97116	5	21
40	9'54769	34	9'57658	39	10'42342	9'97111	5	20
41	9'54802	33	9'57696	38	10'42304	9'97107	4	19
42	9'54836	34	9'57734	38	10'42266	9'97102	5	18
		33		38			5	
43	9'54869		9'57772	38	10'42228	9'97097		17
44	9'54903	34	9'57810	39	10'42190	9'97092	5	16
45	9'54936	33	9'57849	38	10'42151	9'97087	5	15
46	9'54969	33	9'57887	38	10'42113	9'97083	4	14
47	9'55003	34	9'57925	38	10'42075	9'97078	5	13
48	9'55036	33	9'57963	38	10'42037	9'97073	5	12
		33		38			5	
49	9'55069		9'58001	38	10'41999	9'97068		11
50	9'55102	33	9'58039	38	10'41961	9'97063	5	10
51	9'55136	34	9'58077	38	10'41923	9'97059	4	9
52	9'55169	33	9'58115	38	10'41885	9'97054	5	8
53	9'55202	33	9'58153	38	10'41847	9'97049	5	7
54	9'55235	33	9'58191	38	10'41809	9'97044	5	6
		33		38			5	
55	9'55268		9'58229	38	10'41771	9'97039		5
56	9'55301	33	9'58267	37	10'41733	9'97035	4	4
57	9'55334	33	9'58304	38	10'41696	9'97030	5	3
58	9'55367	33	9'58342	38	10'41658	9'97025	5	2
59	9'55400	33	9'58380	38	10'41620	9'97020	5	1
60	9'55433	33	9'58418	38	10'41582	9'97015	5	0
/	Cosine.		Cotang.		Tang.	Sine.		/

21°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9°55433		9°58418		10°41582	9°97015		60
1	9°55466	33	9°58455	37	10°41545	9°97010	5	59
2	9°55499	33	9°58493	38	10°41507	9°97005	5	58
3	9°55532	33	9°58531	38	10°41469	9°97001	4	57
4	9°55564	32	9°58569	38	10°41431	9°96996	5	56
5	9°55597	33	9°58606	37	10°41394	9°96991	5	55
6	9°55630	33	9°58644	38	10°41356	9°96986	5	54
		33		37			5	
7	9°55663		9°58681		10°41319	9°96981		53
8	9°55695	32	9°58719	38	10°41281	9°96976	5	52
9	9°55728	33	9°58757	38	10°41243	9°96971	5	51
10	9°55761	33	9°58794	37	10°41206	9°96966	5	50
11	9°55793	32	9°58832	38	10°41168	9°96962	4	49
12	9°55826	33	9°58869	37	10°41131	9°96957	5	48
		32		38			5	
13	9°55858		9°58907		10°41093	9°96952		47
14	9°55891	33	9°58944	37	10°41056	9°96947	5	46
15	9°55923	32	9°58981	37	10°41019	9°96942	5	45
16	9°55956	33	9°59019	38	10°40981	9°96937	5	44
17	9°55988	32	9°59056	37	10°40944	9°96932	5	43
18	9°56021	33	9°59094	38	10°40906	9°96927	5	42
		32		37			5	
19	9°56053		9°59131		10°40869	9°96922		41
20	9°56085	32	9°59168	37	10°40832	9°96917	5	40
21	9°56118	33	9°59205	37	10°40795	9°96912	5	39
22	9°56150	32	9°59243	38	10°40757	9°96907	5	38
23	9°56182	32	9°59280	37	10°40720	9°96903	4	37
24	9°56215	33	9°59317	37	10°40683	9°96898	5	36
		32		37			5	
25	9°56247		9°59354		10°40646	9°96893		35
26	9°56279	32	9°59391	37	10°40609	9°96888	5	34
27	9°56311	32	9°59429	38	10°40571	9°96883	5	33
28	9°56343	32	9°59466	37	10°40534	9°96878	5	32
29	9°56375	32	9°59503	37	10°40497	9°96873	5	31
30	9°56408	33	9°59540	37	10°40460	9°96868	5	30
/	Cosine.		Cotang.		Tang.	Sine.		/

21°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'56408		9'59540		10'40460	9'96868		30
31	9'56440	32	9'59577	37	10'40423	9'96863	5	29
32	9'56472	32	9'59614	37	10'40386	9'96858	5	28
33	9'56504	32	9'59651	37	10'40349	9'96853	5	27
34	9'56536	32	9'59688	37	10'40312	9'96848	5	26
35	9'56568	32	9'59725	37	10'40275	9'96843	5	25
36	9'56599	31	9'59762	37	10'40238	9'96838	5	24
		32		37			5	
37	9'56631		9'59799		10'40201	9'96833		23
38	9'56663	32	9'59835	36	10'40165	9'96828	5	22
39	9'56695	32	9'59872	37	10'40128	9'96823	5	21
40	9'56727	32	9'59909	37	10'40091	9'96818	5	20
41	9'56759	32	9'59946	37	10'40054	9'96813	5	19
42	9'56790	31	9'59983	37	10'40017	9'96808	5	18
		32		36			5	
43	9'56822		9'60019		10'39981	9'96803		17
44	9'56854	32	9'60056	37	10'39944	9'96798	5	16
45	9'56886	32	9'60093	37	10'39907	9'96793	5	15
46	9'56917	31	9'60130	37	10'39870	9'96788	5	14
47	9'56949	32	9'60166	36	10'39834	9'96783	5	13
48	9'56980	31	9'60203	37	10'39797	9'96778	5	12
		32		37			6	
49	9'57012		9'60240		10'39760	9'96772		11
50	9'57044	32	9'60276	36	10'39724	9'96767	5	10
51	9'57075	31	9'60313	37	10'39687	9'96762	5	9
52	9'57107	32	9'60349	36	10'39651	9'96757	5	8
53	9'57138	31	9'60386	37	10'39614	9'96752	5	7
54	9'57169	31	9'60422	36	10'39578	9'96747	5	6
		32		37			5	
55	9'57201		9'60459		10'39541	9'96742		5
56	9'57232	31	9'60495	36	10'39505	9'96737	5	4
57	9'57264	32	9'60532	37	10'39468	9'96732	5	3
58	9'57295	31	9'60568	36	10'39432	9'96727	5	2
59	9'57326	31	9'60605	37	10'39395	9'96722	5	1
60	9'57358	32	9'60641	36	10'39359	9'96717	5	0
/	Cosine.		Cotang.		Tang.	Sine.		/

22°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9'57358		9'60641		10'39359	9'96717		60
1	9'57389	31	9'60677	36	10'39323	9'96711	6	59
2	9'57420	31	9'60714	37	10'39286	9'96706	5	58
3	9'57451	31	9'60750	36	10'39250	9'96701	5	57
4	9'57482	31	9'60786	36	10'39214	9'96696	5	56
5	9'57514	32	9'60823	37	10'39177	9'96691	5	55
6	9'57545	31	9'60859	35	10'39141	9'96686	5	54
		31		36			5	
7	9'57576		9'60895		10'39105	9'96681		53
8	9'57607	31	9'60931	36	10'39069	9'96676	5	52
9	9'57638	31	9'60967	36	10'39033	9'96670	6	51
10	9'57669	31	9'61004	37	10'38996	9'96665	5	50
11	9'57700	31	9'61040	36	10'38960	9'96660	5	49
12	9'57731	31	9'61076	36	10'38924	9'96655	5	48
		31		36			5	
13	9'57762		9'61112		10'38888	9'96650		47
14	9'57793	31	9'61148	36	10'38852	9'96645	5	46
15	9'57824	31	9'61184	36	10'38816	9'96640	5	45
16	9'57855	31	9'61220	36	10'38780	9'96634	6	44
17	9'57885	30	9'61256	36	10'38744	9'96629	5	43
18	9'57916	31	9'61292	36	10'38708	9'96624	5	42
		31		36			5	
19	9'57947		9'61328		10'38672	9'96619		41
20	9'57978	31	9'61364	36	10'38636	9'96614	5	40
21	9'58008	30	9'61400	36	10'38600	9'96608	6	39
22	9'58039	31	9'61436	36	10'38564	9'96603	5	38
23	9'58070	31	9'61472	36	10'38528	9'96598	5	37
24	9'58101	31	9'61508	36	10'38492	9'96593	5	36
		30		36			5	
25	9'58131		9'61544		10'38456	9'96588		35
26	9'58162	31	9'61579	35	10'38421	9'96582	6	34
27	9'58192	30	9'61615	36	10'38385	9'96577	5	33
28	9'58223	31	9'61651	36	10'38349	9'96572	5	32
29	9'58253	30	9'61687	36	10'38313	9'96567	5	31
30	9'58284	31	9'61722	35	10'38278	9'96562	5	30
/	Cosine.		Cotang.		Tang.	Sine.		/

22°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'58284		9'61722		10'38278	9'96562		30
31	9'58314	30	9'61758	36	10'38242	9'96556	6	29
32	9'58345	31	9'61794	36	10'38206	9'96551	5	28
33	9'58375	30	9'61830	36	10'38170	9'96546	5	27
34	9'58406	31	9'61865	35	10'38135	9'96541	5	26
35	9'58436	30	9'61901	36	10'38099	9'96535	6	25
36	9'58467	31	9'61936	35	10'38064	9'96530	5	24
		30		36			5	
37	9'58497		9'61972		10'38028	9'96525		23
38	9'58527	30	9'62008	36	10'37992	9'96520	5	22
39	9'58557	30	9'62043	35	10'37957	9'96514	6	21
40	9'58588	31	9'62079	36	10'37921	9'96509	5	20
41	9'58618	30	9'62114	35	10'37886	9'96504	5	19
42	9'58648	30	9'62150	36	10'37850	9'96498	6	18
		30		35			5	
43	9'58678		9'62185		10'37815	9'96493		17
44	9'58709	31	9'62221	36	10'37779	9'96488	5	16
45	9'58739	30	9'62256	35	10'37744	9'96483	5	15
46	9'58769	30	9'62292	36	10'37708	9'96477	6	14
47	9'58799	30	9'62327	35	10'37673	9'96472	5	13
48	9'58829	30	9'62362	35	10'37638	9'96467	5	12
		30		36			6	
49	9'58859		9'62398		10'37602	9'96461		11
50	9'58889	30	9'62433	35	10'37567	9'96456	5	10
51	9'58919	30	9'62468	35	10'37532	9'96451	5	9
52	9'58949	30	9'62504	36	10'37496	9'96445	6	8
53	9'58979	30	9'62539	35	10'37461	9'96440	5	7
54	9'59009	30	9'62574	35	10'37426	9'96435	5	6
		30		35			6	
55	9'59039		9'62609		10'37391	9'96429		5
56	9'59069	30	9'62645	36	10'37355	9'96424	5	4
57	9'59098	29	9'62680	35	10'37320	9'96419	5	3
58	9'59128	30	9'62715	35	10'37285	9'96413	6	2
59	9'59158	30	9'62750	35	10'37250	9'96408	5	1
60	9'59188	30	9'62785	35	10'37215	9'96403	5	0
/	Cosine.		Cotang.		Tang.	Sine.		/

23°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9°59188		9°62785		10°37215	9°96403		80
1	9°59218	30	9°62820	35	10°37180	9°96397	6	59
2	9°59247	29	9°62855	35	10°37145	9°96392	5	58
3	9°59277	30	9°62890	35	10°37110	9°96387	5	57
4	9°59307	30	9°62926	36	10°37074	9°96381	6	56
5	9°59336	29	9°62961	35	10°37039	9°96376	5	55
6	9°59366	30	9°62996	35	10°37004	9°96370	6	54
		30		35			5	
7	9°59396		9°63031		10°36969	9°96365		53
8	9°59425	29	9°63066	35	10°36934	9°96360	5	52
9	9°59455	30	9°63101	35	10°36899	9°96354	6	51
10	9°59484	29	9°63135	34	10°36865	9°96349	5	50
11	9°59514	30	9°63170	35	10°36830	9°96343	6	49
12	9°59543	29	9°63205	35	10°36795	9°96338	5	48
		30		35			5	
13	9°59573		9°63240		10°36760	9°96333		47
14	9°59602	29	9°63275	35	10°36725	9°96327	6	46
15	9°59632	30	9°63310	35	10°36690	9°96322	5	45
16	9°59661	29	9°63345	35	10°36655	9°96316	6	44
17	9°59690	29	9°63379	34	10°36621	9°96311	5	43
18	9°59720	30	9°63414	35	10°36586	9°96305	6	42
		29		35			5	
19	9°59749		9°63449		10°36551	9°96300		41
20	9°59778	29	9°63484	35	10°36516	9°96294	6	40
21	9°59808	30	9°63519	35	10°36481	9°96289	5	39
22	9°59837	29	9°63553	34	10°36447	9°96284	5	38
23	9°59866	29	9°63588	35	10°36412	9°96278	6	37
24	9°59895	29	9°63623	35	10°36377	9°96273	5	36
		29		34			6	
25	9°59924		9°63657		10°36343	9°96267		35
26	9°59954	30	9°63692	35	10°36308	9°96262	5	34
27	9°59983	29	9°63726	34	10°36274	9°96256	6	33
28	9°60012	29	9°63761	35	10°36239	9°96251	5	32
29	9°60041	29	9°63796	35	10°36204	9°96245	6	31
30	9°60070	29	9°63830	34	10°36170	9°96240	5	30
/	Cosine.		Cotang.		Tang.	Sine.	/	

23°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'60070		9'63830		10'36170	9'96240		30
31	9'60099	29	9'63865	35	10'36135	9'96234	6	29
32	9'60128	29	9'63899	34	10'36101	9'96229	5	28
33	9'60157	29	9'63934	35	10'36066	9'96223	5	27
34	9'60186	29	9'63968	34	10'36032	9'96218	5	26
35	9'60215	29	9'64003	35	10'35997	9'96212	5	25
36	9'60244	29	9'64037	34	10'35963	9'96207	5	24
		29		35			6	
37	9'60273		9'64072		10'35928	9'96201		23
38	9'60302	29	9'64106	34	10'35894	9'96196	5	22
39	9'60331	29	9'64140	34	10'35860	9'96190	6	21
40	9'60359	28	9'64175	35	10'35825	9'96185	5	20
41	9'60388	29	9'64209	34	10'35791	9'96179	6	19
42	9'60417	29	9'64243	34	10'35757	9'96174	5	18
		29		35			6	
43	9'60446		9'64278		10'35722	9'96168		17
44	9'60474	28	9'64312	34	10'35688	9'96162	6	16
45	9'60503	29	9'64346	34	10'35654	9'96157	5	15
46	9'60532	29	9'64381	35	10'35619	9'96151	6	14
47	9'60561	29	9'64415	34	10'35585	9'96146	5	13
48	9'60589	28	9'64449	34	10'35551	9'96140	6	12
		29		34			5	
49	9'60618		9'64483		10'35517	9'96135		11
50	9'60646	28	9'64517	34	10'35483	9'96129	6	10
51	9'60675	29	9'64552	35	10'35448	9'96123	6	9
52	9'60704	29	9'64586	34	10'35414	9'96118	5	8
53	9'60732	28	9'64620	34	10'35380	9'96112	6	7
54	9'60761	29	9'64654	34	10'35346	9'96107	5	6
		28		34			6	
55	9'60789		9'64688		10'35312	9'96101		5
56	9'60818	29	9'64722	34	10'35278	9'96095	6	4
57	9'60846	28	9'64756	34	10'35244	9'96090	5	3
58	9'60875	29	9'64790	34	10'35210	9'96084	6	2
59	9'60903	28	9'64824	34	10'35176	9'96079	5	1
60	9'60931	28	9'64858	34	10'35142	9'96073	6	0
/	Cosine.		Cotang.		Tang.	Sine.	/	/

24°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9.60931		9.64858		10.35142	9.96073		60
1	9.60960	29	9.64892	34	10.35108	9.96067	6	59
2	9.60988	28	9.64926	34	10.35074	9.96062	5	58
3	9.61016	28	9.64960	34	10.35040	9.96056	6	57
4	9.61045	29	9.64994	34	10.35006	9.96050	6	56
5	9.61073	28	9.65028	34	10.34972	9.96045	5	55
6	9.61101	28	9.65062	34	10.34938	9.96039	6	54
		28		34			5	
7	9.61129		9.65096		10.34904	9.96034		53
8	9.61158	29	9.65130	34	10.34870	9.96028	6	52
9	9.61186	28	9.65164	34	10.34836	9.96022	6	51
10	9.61214	28	9.65197	33	10.34803	9.96017	5	50
11	9.61242	28	9.65231	34	10.34769	9.96011	6	49
12	9.61270	28	9.65265	34	10.34735	9.96005	6	48
		28		34			5	
13	9.61298		9.65299		10.34701	9.96000		47
14	9.61326	28	9.65333	34	10.34667	9.95994	6	46
15	9.61354	28	9.65366	33	10.34634	9.95988	6	45
16	9.61382	28	9.65400	34	10.34600	9.95982	6	44
17	9.61411	29	9.65434	34	10.34566	9.95977	5	43
18	9.61438	27	9.65467	33	10.34533	9.95971	6	42
		28		34				
19	9.61466		9.65501		10.34499	9.95965		41
20	9.61494	28	9.65535	34	10.34465	9.95960	5	40
21	9.61522	28	9.65568	33	10.34432	9.95954	6	39
22	9.61550	28	9.65602	34	10.34398	9.95948	6	38
23	9.61578	28	9.65636	34	10.34364	9.95942	6	37
24	9.61606	28	9.65669	33	10.34331	9.95937	5	36
		28		34			6	
25	9.61634		9.65703		10.34297	9.95931		35
26	9.61662	28	9.65736	33	10.34264	9.95925	6	34
27	9.61689	27	9.65770	34	10.34230	9.95920	5	33
28	9.61717	28	9.65803	33	10.34197	9.95914	6	32
29	9.61745	28	9.65837	34	10.34163	9.95908	6	31
30	9.61773		9.65870	33	10.34130	9.95902		30
/	Cosine.		Cotang.		Tang.	Sine.		/

24°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'61773		9'65870		10'34130	9'95902		30
31	9'61800	27	9'65904	34	10'34096	9'95897	5	29
32	9'61828	28	9'65937	33	10'34063	9'95891	6	28
33	9'61856	28	9'65971	34	10'34029	9'95885	6	27
34	9'61883	27	9'66004	33	10'33996	9'95879	6	26
35	9'61911	28	9'66038	34	10'33962	9'95873	6	25
36	9'61939	28	9'66071	33	10'33929	9'95868	5	24
		27		33			6	
37	9'61966	28	9'66104	34	10'33896	9'95862	6	23
38	9'61994	27	9'66138	33	10'33862	9'95856	6	22
39	9'62021	28	9'66171	33	10'33829	9'95850	6	21
40	9'62049	28	9'66204	33	10'33796	9'95844	6	20
41	9'62076	27	9'66238	34	10'33762	9'95839	5	19
42	9'62104	28	9'66271	33	10'33729	9'95833	6	18
		27		33				
43	9'62131	28	9'66304	33	10'33696	9'95827	6	17
44	9'62159	27	9'66337	34	10'33663	9'95821	6	16
45	9'62186	28	9'66371	33	10'33629	9'95815	6	15
46	9'62214	27	9'66404	33	10'33596	9'95810	5	14
47	9'62241	27	9'66437	33	10'33563	9'95804	6	13
48	9'62268	28	9'66470	33	10'33530	9'95798	6	12
49	9'62296	27	9'66503	34	10'33497	9'95792	6	11
50	9'62323	27	9'66537	33	10'33463	9'95786	6	10
51	9'62350	27	9'66570	33	10'33430	9'95780	5	9
52	9'62377	28	9'66603	33	10'33397	9'95775	6	8
53	9'62405	27	9'66636	33	10'33364	9'95769	6	7
54	9'62432	27	9'66669	33	10'33331	9'95763	6	6
55	9'62459	27	9'66702	33	10'33298	9'95757	6	5
56	9'62486	27	9'66735	33	10'33265	9'95751	6	4
57	9'62513	28	9'66768	33	10'33232	9'95745	6	3
58	9'62541	27	9'66801	33	10'33199	9'95739	6	2
59	9'62568	27	9'66834	33	10'33166	9'95733	5	1
60	9'62595	27	9'66867	33	10'33133	9'95728		0
/	Cosine.		Cotang.		Tang.	Sine.		/

65°

25°

/	Sine.	D.	Tang.	D.C.	Cotang.	Cosine.	D.	/
0	9'62595	27	9'66867		10'33133	9'95728	6	60
1	9'62622	27	9'66900	33	10'33100	9'95722	6	59
2	9'62649	27	9'66933	33	10'33067	9'95716	6	58
3	9'62676	27	9'66966	33	10'33034	9'95710	6	57
4	9'62703	27	9'66999	33	10'33001	9'95704	6	56
5	9'62730	27	9'67032	33	10'32968	9'95698	6	55
6	9'62757	27	9'67065	33	10'32935	9'95692	6	54
7	9'62784	27	9'67098		10'32902	9'95686	6	53
8	9'62811	27	9'67131	33	10'32869	9'95680	6	52
9	9'62838	27	9'67163	32	10'32837	9'95674	6	51
10	9'62865	27	9'67196	33	10'32804	9'95668	6	50
11	9'62892	26	9'67229	33	10'32771	9'95663	5	49
12	9'62918	27	9'67262	33	10'32738	9'95657	6	48
13	9'62945	27	9'67295		10'32705	9'95651	6	47
14	9'62972	27	9'67327	32	10'32673	9'95645	6	46
15	9'62999	27	9'67360	33	10'32640	9'95639	6	45
16	9'63026	26	9'67393	33	10'32607	9'95633	6	44
17	9'63052	27	9'67426	33	10'32574	9'95627	6	43
18	9'63079	27	9'67458	32	10'32542	9'95621	6	42
19	9'63106	27	9'67491		10'32509	9'95615	6	41
20	9'63133	26	9'67524	33	10'32476	9'95609	6	40
21	9'63159	27	9'67556	32	10'32444	9'95603	6	39
22	9'63186	27	9'67589	33	10'32411	9'95597	6	38
23	9'63213	26	9'67622	33	10'32378	9'95591	6	37
24	9'63239	27	9'67654	32	10'32346	9'95585	6	36
25	9'63266	26	9'67687		10'32313	9'95579	6	35
26	9'63292	27	9'67719	32	10'32281	9'95573	6	34
27	9'63319	26	9'67752	33	10'32248	9'95567	6	33
28	9'63345	27	9'67785	33	10'32215	9'95561	6	32
29	9'63372	26	9'67817	32	10'32183	9'95555	6	31
30	9'63398		9'67850	33	10'32150	9'95549		30
/	Cosine.		Cotang.		Tang.	Sine.	/	

25°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'63398		9'67850		10'32150	9'95549		30
31	9'63425	27	9'67882	32	10'32118	9'95543	6	29
32	9'63451	26	9'67915	33	10'32085	9'95537	6	28
33	9'63478	27	9'67947	32	10'32053	9'95531	6	27
34	9'63504	26	9'67980	33	10'32020	9'95525	6	26
35	9'63531	27	9'68012	32	10'31988	9'95519	6	25
36	9'63557	26	9'68044	32	10'31956	9'95513	6	24
		26		33			6	
37	9'63583	27	9'68077	32	10'31923	9'95507	7	23
38	9'63610	26	9'68109	33	10'31891	9'95500	6	22
39	9'63636	26	9'68142	32	10'31858	9'95494	6	21
40	9'63662	26	9'68174	32	10'31826	9'95488	6	20
41	9'63689	27	9'68206	32	10'31794	9'95482	6	19
42	9'63715	26	9'68239	33	10'31761	9'95476	6	18
		26		32			6	
43	9'63741	26	9'68271	32	10'31729	9'95470	6	17
44	9'63767	27	9'68303	33	10'31697	9'95464	6	16
45	9'63794	26	9'68336	32	10'31664	9'95458	6	15
46	9'63820	26	9'68368	32	10'31632	9'95452	6	14
47	9'63846	26	9'68400	32	10'31600	9'95446	6	13
48	9'63872	26	9'68432	32	10'31568	9'95440	6	12
		26		33			6	
49	9'63898	26	9'68465	32	10'31535	9'95434	7	11
50	9'63924	26	9'68497	32	10'31503	9'95427	6	10
51	9'63950	26	9'68529	32	10'31471	9'95421	6	9
52	9'63976	26	9'68561	32	10'31439	9'95415	6	8
53	9'64002	26	9'68593	32	10'31407	9'95409	6	7
54	9'64028	26	9'68626	33	10'31374	9'95403	6	6
		26		32			6	
55	9'64054	26	9'68658	32	10'31342	9'95397	6	5
56	9'64080	26	9'68690	32	10'31310	9'95391	7	4
57	9'64106	26	9'68722	32	10'31278	9'95384	6	3
58	9'64132	26	9'68754	32	10'31246	9'95378	6	2
59	9'64158	26	9'68786	32	10'31214	9'95372	6	1
60	9'64184	26	9'68818	32	10'31182	9'95366	6	0
/	Cosine.		Cotang.		Tang.	Sine.		/

26°

'	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	'
0	9°64184	26	9°68818		10°31182	9°95366	6	60
1	9°64210	26	9°68850	32	10°31150	9°95360	6	59
2	9°64236	26	9°68882	32	10°31118	9°95354	6	58
3	9°64262	26	9°68914	32	10°31086	9°95348	7	57
4	9°64288	25	9°68946	32	10°31054	9°95341	6	56
5	9°64313	26	9°68978	32	10°31022	9°95335	6	55
6	9°64339	26	9°69010	32	10°30990	9°95329	6	54
7	9°64365	26	9°69042	32	10°30958	9°95323	6	53
8	9°64391	26	9°69074	32	10°30926	9°95317	7	52
9	9°64417	25	9°69106	32	10°30894	9°95310	6	51
10	9°64442	26	9°69138	32	10°30862	9°95304	6	50
11	9°64468	26	9°69170	32	10°30830	9°95298	6	49
12	9°64494	25	9°69202	32	10°30798	9°95292	6	48
13	9°64519	26	9°69234	32	10°30766	9°95286	7	47
14	9°64545	26	9°69266	32	10°30734	9°95279	6	46
15	9°64571	25	9°69298	31	10°30702	9°95273	6	45
16	9°64596	26	9°69329	32	10°30671	9°95267	6	44
17	9°64622	25	9°69361	32	10°30639	9°95261	7	43
18	9°64647	26	9°69393	32	10°30607	9°95254	6	42
19	9°64673	25	9°69425	32	10°30575	9°95248	6	41
20	9°64698	26	9°69457	31	10°30543	9°95242	6	40
21	9°64724	25	9°69488	32	10°30512	9°95236	7	39
22	9°64749	26	9°69520	32	10°30480	9°95229	6	38
23	9°64775	25	9°69552	32	10°30448	9°95223	6	37
24	9°64800	26	9°69584	31	10°30416	9°95217	6	36
25	9°64826	25	9°69615	32	10°30385	9°95211	7	35
26	9°64851	26	9°69647	32	10°30353	9°95204	6	34
27	9°64877	25	9°69679	31	10°30321	9°95198	6	33
28	9°64902	25	9°69710	32	10°30290	9°95192	7	32
29	9°64927	26	9°69742	32	10°30258	9°95185	6	31
30	9°64953		9°69774		10°30226	9°95179		30
'	Cosine.		Cotang.		Tang.	Sine.		'

26°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'64953		9'69774	31	10'30226	9'95179	6	30
31	9'64978	25	9'69805	32	10'30195	9'95173	6	29
32	9'65003	25	9'69837	31	10'30163	9'95167	7	28
33	9'65029	26	9'69868	32	10'30132	9'95160	6	27
34	9'65054	25	9'69900	32	10'30100	9'95154	6	26
35	9'65079	25	9'69932	31	10'30068	9'95148	7	25
36	9'65104	26	9'69963	32	10'30037	9'95141	6	24
37	9'65130		9'69995	31	10'30005	9'95135	6	23
38	9'65155	25	9'70026	32	10'29974	9'95129	7	22
39	9'65180	25	9'70058	31	10'29942	9'95122	6	21
40	9'65205	25	9'70089	32	10'29911	9'95116	6	20
41	9'65230	25	9'70121	31	10'29879	9'95110	7	19
42	9'65255	26	9'70152	32	10'29848	9'95103	6	18
43	9'65281		9'70184	31	10'29816	9'95097	7	17
44	9'65306	25	9'70215	32	10'29785	9'95090	6	16
45	9'65331	25	9'70247	31	10'29753	9'95084	6	15
46	9'65356	25	9'70278	32	10'29722	9'95078	7	14
47	9'65381	25	9'70309	31	10'29691	9'95071	6	13
48	9'65406	25	9'70341	32	10'29659	9'95065	6	12
49	9'65431		9'70372	31	10'29628	9'95059	7	11
50	9'65456	25	9'70404	32	10'29596	9'95052	6	10
51	9'65481	25	9'70435	31	10'29565	9'95046	7	9
52	9'65506	25	9'70466	32	10'29534	9'95039	6	8
53	9'65531	25	9'70498	31	10'29502	9'95033	6	7
54	9'65556	24	9'70529	32	10'29471	9'95027	7	6
55	9'65580		9'70560	31	10'29440	9'95020	6	5
56	9'65605	25	9'70592	32	10'29408	9'95014	7	4
57	9'65630	25	9'70623	31	10'29377	9'95007	6	3
58	9'65655	25	9'70654	32	10'29346	9'95001	6	2
59	9'65680	25	9'70685	31	10'29315	9'94995	6	1
60	9'65705		9'70717	32	10'29283	9'94988	7	0
/	Cosine.		Cotang.		Tang.	Sine.	/	

63°

27°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9.65705		9.70717		10.29283	9.94988		60
1	9.65729	24	9.70748	31	10.29252	9.94982	6	59
2	9.65754	25	9.70779	31	10.29221	9.94975	7	58
3	9.65779	25	9.70810	31	10.29190	9.94969	6	57
4	9.65804	25	9.70841	31	10.29159	9.94962	7	56
5	9.65828	24	9.70873	32	10.29127	9.94956	6	55
6	9.65853	25	9.70904	31	10.29096	9.94949	7	54
		25		31			6	
7	9.65878		9.70935		10.29065	9.94943		53
8	9.65902	24	9.70966	31	10.29034	9.94936	7	52
9	9.65927	25	9.70997	31	10.29003	9.94930	6	51
10	9.65952	25	9.71028	31	10.28972	9.94923	7	50
11	9.65976	24	9.71059	31	10.28941	9.94917	6	49
12	9.66001	25	9.71090	31	10.28910	9.94911	7	48
		24		31				
13	9.66025		9.71121		10.28879	9.94904		47
14	9.66050	25	9.71153	32	10.28847	9.94898	6	46
15	9.66075	25	9.71184	31	10.28816	9.94891	7	45
16	9.66099	24	9.71215	31	10.28785	9.94885	6	44
17	9.66124	25	9.71246	31	10.28754	9.94878	7	43
18	9.66148	24	9.71277	31	10.28723	9.94871	7	42
		25		31			6	
19	9.66173		9.71308		10.28692	9.94865		41
20	9.66197	24	9.71339	31	10.28661	9.94858	7	40
21	9.66221	24	9.71370	31	10.28630	9.94852	6	39
22	9.66246	25	9.71401	31	10.28599	9.94845	7	38
23	9.66270	24	9.71431	30	10.28569	9.94839	6	37
24	9.66295	25	9.71462	31	10.28538	9.94832	7	36
		24		31			6	
25	9.66319		9.71493		10.28507	9.94826		35
26	9.66343	24	9.71524	31	10.28476	9.94819	7	34
27	9.66368	25	9.71555	31	10.28445	9.94813	6	33
28	9.66392	24	9.71586	31	10.28414	9.94806	7	32
29	9.66416	24	9.71617	31	10.28383	9.94799	7	31
30	9.66441	25	9.71648	31	10.28352	9.94793	6	30
/	Cosine.		Cotang.		Tang.	Sine.		/

'	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	'
30	9.66441		9.71648		10.28352	9.94793		30
31	9.66465	24	9.71679	31	10.28321	9.94786	7	29
32	9.66489	24	9.71709	30	10.28291	9.94780	6	28
33	9.66513	24	9.71740	31	10.28260	9.94773	7	27
34	9.66537	24	9.71771	31	10.28229	9.94767	6	26
35	9.66562	25	9.71802	31	10.28198	9.94760	7	25
36	9.66586	24	9.71833	31	10.28167	9.94753	7	24
		24		30			6	
37	9.66610		9.71863		10.28137	9.94747		23
38	9.66634	24	9.71894	31	10.28106	9.94740	7	22
39	9.66658	24	9.71925	31	10.28075	9.94734	6	21
40	9.66682	24	9.71955	30	10.28045	9.94727	7	20
41	9.66706	24	9.71986	31	10.28014	9.94720	7	19
42	9.66731	25	9.72017	31	10.27983	9.94714	6	18
		24		31			7	
43	9.66755		9.72048		10.27952	9.94707		17
44	9.66779	24	9.72078	30	10.27922	9.94700	7	16
45	9.66803	24	9.72109	31	10.27891	9.94694	6	15
46	9.66827	24	9.72140	31	10.27860	9.94687	7	14
47	9.66851	24	9.72170	30	10.27830	9.94680	7	13
48	9.66875	24	9.72201	31	10.27799	9.94674	6	12
		24		30			7	
49	9.66899		9.72231		10.27769	9.94667		11
50	9.66922	23	9.72262	31	10.27738	9.94660	7	10
51	9.66946	24	9.72293	31	10.27707	9.94654	6	9
52	9.66970	24	9.72323	30	10.27677	9.94647	7	8
53	9.66994	24	9.72354	31	10.27646	9.94640	7	7
54	9.67018	24	9.72384	30	10.27616	9.94634	6	6
		24		31			7	
55	9.67042		9.72415		10.27585	9.94627		5
56	9.67066	24	9.72445	30	10.27555	9.94620	7	4
57	9.67090	24	9.72476	31	10.27524	9.94614	6	3
58	9.67113	23	9.72506	30	10.27494	9.94607	7	2
59	9.67137	24	9.72537	31	10.27463	9.94600	7	1
60	9.67161	24	9.72567	30	10.27433	9.94593	7	0
'	Cosine.		Cotang.		Tang.	Sine.		'

28°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9'67161		9'72567		10'27433	9'94593		60
1	9'67185	24	9'72598	31	10'27402	9'94587	6	59
2	9'67208	23	9'72628	30	10'27372	9'94580	7	58
3	9'67232	24	9'72659	31	10'27341	9'94573	7	57
4	9'67256	24	9'72689	30	10'27311	9'94567	6	56
5	9'67280	24	9'72720	31	10'27280	9'94560	7	55
6	9'67303	23	9'72750	30	10'27250	9'94553	7	54
		24		30			7	
7	9'67327		9'72780		10'27220	9'94546		53
8	9'67350	23	9'72811	31	10'27189	9'94540	6	52
9	9'67374	24	9'72841	30	10'27159	9'94533	7	51
10	9'67398	24	9'72872	31	10'27128	9'94526	7	50
11	9'67421	23	9'72902	30	10'27098	9'94519	7	49
12	9'67445	24	9'72932	30	10'27068	9'94513	6	48
		23		31			7	
13	9'67468		9'72963		10'27037	9'94506		47
14	9'67492	24	9'72993	30	10'27007	9'94499	7	46
15	9'67515	23	9'73023	30	10'26977	9'94492	7	45
16	9'67539	24	9'73054	31	10'26946	9'94485	7	44
17	9'67562	23	9'73084	30	10'26916	9'94479	6	43
18	9'67586	24	9'73114	30	10'26886	9'94472	7	42
		23		30			7	
19	9'67609		9'73144		10'26856	9'94465		41
20	9'67633	24	9'73175	31	10'26825	9'94458	7	40
21	9'67656	23	9'73205	30	10'26795	9'94451	7	39
22	9'67680	24	9'73235	30	10'26765	9'94445	6	38
23	9'67703	23	9'73265	30	10'26735	9'94438	7	37
24	9'67726	23	9'73295	30	10'26705	9'94431	7	36
		24		31			7	
25	9'67750		9'73326		10'26674	9'94424		35
26	9'67773	23	9'73356	30	10'26644	9'94417	7	34
27	9'67796	23	9'73386	30	10'26614	9'94410	7	33
28	9'67820	24	9'73416	30	10'26584	9'94404	6	32
29	9'67843	23	9'73446	30	10'26554	9'94397	7	31
30	9'67866	23	9'73476	30	10'26524	9'94390	7	30
/	Cosine.		Cotang.		Tang.	Sine.		/

28°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'67866		9'73476		10'26524	9'94390		30
31	9'67890	24	9'73507	31	10'26493	9'94383	7	29
32	9'67913	23	9'73537	30	10'26463	9'94376	7	28
33	9'67936	23	9'73567	30	10'26433	9'94369	7	27
34	9'67959	23	9'73597	30	10'26403	9'94362	7	26
35	9'67982	23	9'73627	30	10'26373	9'94355	7	25
36	9'68006	24	9'73657	30	10'26343	9'94349	6	24
		23		30			7	
37	9'68029		9'73687		10'26313	9'94342		23
38	9'68052	23	9'73717	30	10'26283	9'94335	7	22
39	9'68075	23	9'73747	30	10'26253	9'94328	7	21
40	9'68098	23	9'73777	30	10'26223	9'94321	7	20
41	9'68121	23	9'73807	30	10'26193	9'94314	7	19
42	9'68144	23	9'73837	30	10'26163	9'94307	7	18
		23		30			7	
43	9'68167		9'73867		10'26133	9'94300		17
44	9'68190	23	9'73897	30	10'26103	9'94293	7	16
45	9'68213	23	9'73927	30	10'26073	9'94286	7	15
46	9'68237	24	9'73957	30	10'26043	9'94279	7	14
47	9'68260	23	9'73987	30	10'26013	9'94273	6	13
48	9'68283	23	9'74017	30	10'25983	9'94266	7	12
		22		30			7	
49	9'68305		9'74047		10'25953	9'94259		11
50	9'68328	23	9'74077	30	10'25923	9'94252	7	10
51	9'68351	23	9'74107	30	10'25893	9'94245	7	9
52	9'68374	23	9'74137	30	10'25863	9'94238	7	8
53	9'68397	23	9'74166	29	10'25834	9'94231	7	7
54	9'68420	23	9'74196	30	10'25804	9'94224	7	6
		23		30			7	
55	9'68443		9'74226		10'25774	9'94217		5
56	9'68466	23	9'74256	30	10'25744	9'94210	7	4
57	9'68489	23	9'74286	30	10'25714	9'94203	7	3
58	9'68512	23	9'74316	30	10'25684	9'94196	7	2
59	9'68534	22	9'74345	29	10'25655	9'94189	7	1
60	9'68557	23	9'74375	30	10'25625	9'94182	7	0
/	Cosine.		Cotang.		Tang.	Sine.		/

61°

29°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9.68557		9.74375		10.25625	9.94182		60
1	9.68580	23	9.74405	30	10.25595	9.94175	7	59
2	9.68603	23	9.74435	30	10.25565	9.94168	7	58
3	9.68625	22	9.74465	30	10.25535	9.94161	7	57
4	9.68648	23	9.74494	29	10.25506	9.94154	7	56
5	9.68671	23	9.74524	30	10.25476	9.94147	7	55
6	9.68694	23	9.74554	30	10.25446	9.94140	7	54
		22		29				
7	9.68716		9.74583		10.25417	9.94133		53
8	9.68739	23	9.74613	30	10.25387	9.94126	7	52
9	9.68762	23	9.74643	30	10.25357	9.94119	7	51
10	9.68784	22	9.74673	30	10.25327	9.94112	7	50
11	9.68807	23	9.74702	29	10.25298	9.94105	7	49
12	9.68829	22	9.74732	30	10.25268	9.94098	7	48
		23		30			8	
13	9.68852		9.74762		10.25238	9.94090		47
14	9.68875	23	9.74791	29	10.25209	9.94083	7	46
15	9.68897	22	9.74821	30	10.25179	9.94076	7	45
16	9.68920	23	9.74851	30	10.25149	9.94069	7	44
17	9.68942	22	9.74880	29	10.25120	9.94062	7	43
18	9.68965	23	9.74910	30	10.25090	9.94055	7	42
		22		29				
19	9.68987		9.74939		10.25061	9.94048		41
20	9.69010	23	9.74969	30	10.25031	9.94041	7	40
21	9.69032	22	9.74998	29	10.25002	9.94034	7	39
22	9.69055	23	9.75028	30	10.24972	9.94027	7	38
23	9.69077	22	9.75058	30	10.24942	9.94020	7	37
24	9.69100	23	9.75087	29	10.24913	9.94012	8	36
		22		30			7	
25	9.69122		9.75117		10.24883	9.94005		35
26	9.69144	22	9.75146	29	10.24854	9.93998	7	34
27	9.69167	23	9.75176	30	10.24824	9.93991	7	33
28	9.69189	22	9.75205	29	10.24795	9.93984	7	32
29	9.69212	23	9.75235	30	10.24765	9.93977	7	31
30	9.69234	22	9.75264	29	10.24736	9.93970	7	30
/	Cosine.		Cotang.		Tang.	Sine.		/

29°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9.69234		9.75264		10.24736	9.93970		30
31	9.69256	22	9.75294	30	10.24706	9.93963	7	29
32	9.69279	23	9.75323	29	10.24677	9.93955	8	28
33	9.69301	22	9.75353	30	10.24647	9.93948	7	27
34	9.69323	22	9.75382	29	10.24618	9.93941	7	26
35	9.69345	22	9.75411	29	10.24589	9.93934	7	25
36	9.69368	23	9.75441	30	10.24559	9.93927	7	24
		22		29			7	
37	9.69390		9.75470		10.24530	9.93920		23
38	9.69412	22	9.75500	30	10.24500	9.93912	8	22
39	9.69434	22	9.75529	29	10.24471	9.93905	7	21
40	9.69456	22	9.75558	29	10.24442	9.93898	7	20
41	9.69479	23	9.75588	30	10.24412	9.93891	7	19
42	9.69501	22	9.75617	29	10.24383	9.93884	7	18
		22		30			8	
43	9.69523		9.75647		10.24353	9.93876		17
44	9.69545	22	9.75676	29	10.24324	9.93869	7	16
45	9.69567	22	9.75705	29	10.24295	9.93862	7	15
46	9.69589	22	9.75735	30	10.24265	9.93855	7	14
47	9.69611	22	9.75764	29	10.24236	9.93847	8	13
48	9.69633	22	9.75793	29	10.24207	9.93840	7	12
		22		29			7	
49	9.69655		9.75822		10.24178	9.93833		11
50	9.69677	22	9.75852	30	10.24148	9.93826	7	10
51	9.69699	22	9.75881	29	10.24119	9.93819	7	9
52	9.69721	22	9.75910	29	10.24090	9.93811	8	8
53	9.69743	22	9.75939	29	10.24061	9.93804	7	7
54	9.69765	22	9.75969	30	10.24031	9.93797	7	6
		22		29			8	
55	9.69787		9.75998		10.24002	9.93789		5
56	9.69809	22	9.76027	29	10.23973	9.93782	7	4
57	9.69831	22	9.76056	29	10.23944	9.93775	7	3
58	9.69853	22	9.76086	30	10.23914	9.93768	7	2
59	9.69875	22	9.76115	29	10.23885	9.93760	8	1
60	9.69897	22	9.76144	29	10.23856	9.93753	7	0
/	Cosine.		Cotang.		Tang.	Sine.		/

30°

/	Sine.	D.	Tang.	D.C.	Cotang.	Cosine.	D.	/
0	9'69897	22	9'76144	29	10'23856	9'93753	7	60
1	9'69919	22	9'76173	29	10'23827	9'93746	8	59
2	9'69941	22	9'76202	29	10'23798	9'93738	7	58
3	9'69963	21	9'76231	29	10'23769	9'93731	7	57
4	9'69984	22	9'76261	30	10'23739	9'93724	7	56
5	9'70006	22	9'76290	29	10'23710	9'93717	8	55
6	9'70028	22	9'76319	29	10'23681	9'93709	7	54
7	9'70050	22	9'76348	29	10'23652	9'93702	7	53
8	9'70072	21	9'76377	29	10'23623	9'93695	8	52
9	9'70093	22	9'76406	29	10'23594	9'93687	7	51
10	9'70115	22	9'76435	29	10'23565	9'93680	7	50
11	9'70137	22	9'76464	29	10'23536	9'93673	8	49
12	9'70159	21	9'76493	29	10'23507	9'93665	7	48
13	9'70180	22	9'76522	29	10'23478	9'93658	8	47
14	9'70202	22	9'76551	29	10'23449	9'93650	7	46
15	9'70224	21	9'76580	29	10'23420	9'93643	7	45
16	9'70245	22	9'76609	29	10'23391	9'93636	8	44
17	9'70267	21	9'76639	30	10'23361	9'93628	7	43
18	9'70288	22	9'76668	29	10'23332	9'93621	7	42
19	9'70310	22	9'76697	28	10'23303	9'93614	8	41
20	9'70332	21	9'76725	29	10'23275	9'93606	7	40
21	9'70353	22	9'76754	29	10'23246	9'93599	8	39
22	9'70375	21	9'76783	29	10'23217	9'93591	7	38
23	9'70396	22	9'76812	29	10'23188	9'93584	7	37
24	9'70418	21	9'76841	29	10'23159	9'93577	8	36
25	9'70439	22	9'76870	29	10'23130	9'93569	7	35
26	9'70461	21	9'76899	29	10'23101	9'93562	8	34
27	9'70482	22	9'76928	29	10'23072	9'93554	7	33
28	9'70504	21	9'76957	29	10'23043	9'93547	8	32
29	9'70525	22	9'76986	29	10'23014	9'93539	7	31
30	9'70547		9'77015	29	10'22985	9'93532		30
/	Cosine.		Cotang.		Tang.	Sine.	/	

30°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	970547	21	977015	29	1022985	993532	7	30
31	970568	22	977044	29	1022956	993525	8	29
32	970590	21	977073	28	1022927	993517	7	28
33	970611	22	977101	29	1022899	993510	8	27
34	970633	21	977130	29	1022870	993502	7	26
35	970654	21	977159	29	1022841	993495	8	25
36	970675	22	977188	29	1022812	993487	7	24
37	970697	21	977217	29	1022783	993480	8	23
38	970718	21	977246	28	1022754	993472	7	22
39	970739	22	977274	29	1022726	993465	8	21
40	970761	21	977303	29	1022697	993457	7	20
41	970782	21	977332	29	1022668	993450	8	19
42	970803	21	977361	29	1022639	993442	7	18
43	970824	22	977390	28	1022610	993435	8	17
44	970846	21	977418	29	1022582	993427	7	16
45	970867	21	977447	29	1022553	993420	8	15
46	970888	21	977476	29	1022524	993412	7	14
47	970909	22	977505	28	1022495	993405	8	13
48	970931	21	977533	29	1022467	993397	7	12
49	970952	21	977562	29	1022438	993390	8	11
50	970973	21	977591	28	1022409	993382	7	10
51	970994	21	977619	29	1022381	993375	8	9
52	971015	21	977648	29	1022352	993367	7	8
53	971036	22	977677	29	1022323	993360	8	7
54	971058	21	977706	28	1022294	993352	8	6
55	971079	21	977734	29	1022266	993344	7	5
56	971100	21	977763	28	1022237	993337	8	4
57	971121	21	977791	29	1022209	993329	7	3
58	971142	21	977820	29	1022180	993322	8	2
59	971163	21	977849	28	1022151	993314	7	1
60	971184		977877		1022123	993307		0
/	Cosine.		Cotang.		Tang.	Sine.	/	

31°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9'71184	21	9'77877	29	10'22123	9'93307	8	60
1	9'71205	21	9'77906	29	10'22094	9'93299	8	59
2	9'71226	21	9'77935	28	10'22065	9'93291	7	58
3	9'71247	21	9'77963	29	10'22037	9'93284	8	57
4	9'71268	21	9'77992	28	10'22008	9'93276	7	56
5	9'71289	21	9'78020	29	10'21980	9'93269	8	55
6	9'71310	21	9'78049	28	10'21951	9'93261	8	54
7	9'71331	21	9'78077	29	10'21923	9'93253	7	53
8	9'71352	21	9'78106	29	10'21894	9'93246	8	52
9	9'71373	20	9'78135	28	10'21865	9'93238	8	51
10	9'71393	21	9'78163	29	10'21837	9'93230	7	50
11	9'71414	21	9'78192	28	10'21808	9'93223	8	49
12	9'71435	21	9'78220	29	10'21780	9'93215	8	48
13	9'71456	21	9'78249	28	10'21751	9'93207	7	47
14	9'71477	21	9'78277	29	10'21723	9'93200	8	46
15	9'71498	21	9'78306	28	10'21694	9'93192	8	45
16	9'71519	20	9'78334	29	10'21666	9'93184	7	44
17	9'71539	21	9'78363	28	10'21637	9'93177	8	43
18	9'71560	21	9'78391	28	10'21609	9'93169	8	42
19	9'71581	21	9'78419	29	10'21581	9'93161	7	41
20	9'71602	20	9'78448	28	10'21552	9'93154	8	40
21	9'71622	21	9'78476	29	10'21524	9'93146	8	39
22	9'71643	21	9'78505	28	10'21495	9'93138	7	38
23	9'71664	21	9'78533	29	10'21467	9'93131	8	37
24	9'71685	20	9'78562	28	10'21438	9'93123	8	36
25	9'71705	21	9'78590	28	10'21410	9'93115	7	35
26	9'71726	21	9'78618	29	10'21382	9'93108	8	34
27	9'71747	20	9'78647	28	10'21353	9'93100	8	33
28	9'71767	21	9'78675	29	10'21325	9'93092	8	32
29	9'71788	21	9'78704	28	10'21296	9'93084	7	31
30	9'71809		9'78732		10'21268	9'93077		30
/	Cosine.		Cotang.		Tang.	Sine.	/	

31°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9°7'1809		9°78732	28	10°21268	9°93077		30
31	9°7'1829	20	9°78760	28	10°21240	9°93069	8	29
32	9°7'1850	21	9°78789	29	10°21211	9°93061	8	28
33	9°7'1870	20	9°78817	28	10°21183	9°93053	8	27
34	9°7'1891	21	9°78845	28	10°21155	9°93046	7	26
35	9°7'1911	20	9°78874	29	10°21126	9°93038	8	25
36	9°7'1932	21	9°78902	28	10°21098	9°93030	8	24
		20		28			8	
37	9°7'1952	21	9°78930	29	10°21070	9°93022	8	23
38	9°7'1973	21	9°78959	28	10°21041	9°93014	7	22
39	9°7'1994	20	9°78987	28	10°21013	9°93007	8	21
40	9°7'2014	20	9°79015	28	10°20985	9°92999	8	20
41	9°7'2034	21	9°79043	29	10°20957	9°92991	8	19
42	9°7'2055	20	9°79072	28	10°20928	9°92983	7	18
43	9°7'2075	21	9°79100	28	10°20900	9°92976	8	17
44	9°7'2096	20	9°79128	28	10°20872	9°92968	8	16
45	9°7'2116	21	9°79156	29	10°20844	9°92960	8	15
46	9°7'2137	20	9°79185	28	10°20815	9°92952	8	14
47	9°7'2157	20	9°79213	28	10°20787	9°92944	8	13
48	9°7'2177	21	9°79241	28	10°20759	9°92936	7	12
49	9°7'2198	20	9°79269	28	10°20731	9°92929	8	11
50	9°7'2218	20	9°79297	29	10°20703	9°92921	8	10
51	9°7'2238	21	9°79326	28	10°20674	9°92913	8	9
52	9°7'2259	20	9°79354	28	10°20646	9°92905	8	8
53	9°7'2279	20	9°79382	28	10°20618	9°92897	8	7
54	9°7'2299	21	9°79410	28	10°20590	9°92889	8	6
55	9°7'2320	20	9°79438	28	10°20562	9°92881		5
56	9°7'2340	20	9°79466	29	10°20534	9°92874	7	4
57	9°7'2360	21	9°79495	28	10°20505	9°92866	8	3
58	9°7'2381	21	9°79523	28	10°20477	9°92858	8	2
59	9°7'2401	20	9°79551	28	10°20449	9°92850	8	1
60	9°7'2421	20	9°79579	28	10°20421	9°92842	8	0
/	Cosine.		Cotang.		Tang.	Sine.		/

32°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9'72421	20	9'79579	28	10'20421	9'92842	8	60
1	9'72441	20	9'79607	28	10'20393	9'92834	8	59
2	9'72461	20	9'79635	28	10'20365	9'92826	8	58
3	9'72482	21	9'79663	28	10'20337	9'92818	8	57
4	9'72502	20	9'79691	28	10'20309	9'92810	8	56
5	9'72522	20	9'79719	28	10'20281	9'92803	7	55
6	9'72542	20	9'79747	29	10'20253	9'92795	8	54
7	9'72562	20	9'79776	28	10'20224	9'92787	8	53
8	9'72582	20	9'79804	28	10'20196	9'92779	8	52
9	9'72602	20	9'79832	28	10'20168	9'92771	8	51
10	9'72622	21	9'79860	28	10'20140	9'92763	8	50
11	9'72643	20	9'79888	28	10'20112	9'92755	8	49
12	9'72663	20	9'79916	28	10'20084	9'92747	8	48
13	9'72683	20	9'79944	28	10'20056	9'92739	8	47
14	9'72703	20	9'79972	28	10'20028	9'92731	8	46
15	9'72723	20	9'80000	28	10'20000	9'92723	8	45
16	9'72743	20	9'80028	28	10'19972	9'92715	8	44
17	9'72763	20	9'80056	28	10'19944	9'92707	8	43
18	9'72783	20	9'80084	28	10'19916	9'92699	8	42
19	9'72803	20	9'80112	28	10'19888	9'92691	8	41
20	9'72823	20	9'80140	28	10'19860	9'92683	8	40
21	9'72843	20	9'80168	28	10'19832	9'92675	8	39
22	9'72863	20	9'80195	27	10'19805	9'92667	8	38
23	9'72883	19	9'80223	28	10'19777	9'92659	8	37
24	9'72902	20	9'80251	28	10'19749	9'92651	8	36
25	9'72922	20	9'80279	28	10'19721	9'92643	8	35
26	9'72942	20	9'80307	28	10'19693	9'92635	8	34
27	9'72962	20	9'80335	28	10'19665	9'92627	8	33
28	9'72982	20	9'80363	28	10'19637	9'92619	8	32
29	9'73002	20	9'80391	28	10'19609	9'92611	8	31
30	9'73022	20	9'80419	28	10'19581	9'92603	8	30
/	Cosine.		Cotang.		Tang.	Sine.	/	

32°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'73022	19	9'80419	28	10'19581	9'92603	8	30
31	9'73041	20	9'80447	27	10'19553	9'92595	8	29
32	9'73061	20	9'80474	28	10'19526	9'92587	8	28
33	9'73081	20	9'80502	28	10'19498	9'92579	8	27
34	9'73101	20	9'80530	28	10'19470	9'92571	8	26
35	9'73121	19	9'80558	28	10'19442	9'92563	8	25
36	9'73140	20	9'80586	28	10'19414	9'92555	9	24
37	9'73160	20	9'80614	28	10'19386	9'92546	8	23
38	9'73180	20	9'80642	27	10'19358	9'92538	8	22
39	9'73200	19	9'80669	28	10'19331	9'92530	8	21
40	9'73219	20	9'80697	28	10'19303	9'92522	8	20
41	9'73239	20	9'80725	28	10'19275	9'92514	8	19
42	9'73259	19	9'80753	28	10'19247	9'92506	8	18
43	9'73278	20	9'80781	27	10'19219	9'92498	8	17
44	9'73298	20	9'80808	28	10'19192	9'92490	8	16
45	9'73318	19	9'80836	28	10'19164	9'92482	9	15
46	9'73337	20	9'80864	28	10'19136	9'92473	8	14
47	9'73357	20	9'80892	27	10'19108	9'92465	8	13
48	9'73377	19	9'80919	28	10'19081	9'92457	8	12
49	9'73396	20	9'80947	28	10'19053	9'92449	8	11
50	9'73416	19	9'80975	28	10'19025	9'92441	8	10
51	9'73435	20	9'81003	27	10'18997	9'92433	8	9
52	9'73455	19	9'81030	28	10'18970	9'92425	9	8
53	9'73474	20	9'81058	28	10'18942	9'92416	8	7
54	9'73494	19	9'81086	27	10'18914	9'92408	8	6
55	9'73513	20	9'81113	28	10'18887	9'92400	8	5
56	9'73533	19	9'81141	28	10'18859	9'92392	8	4
57	9'73552	20	9'81169	27	10'18831	9'92384	8	3
58	9'73572	19	9'81196	28	10'18804	9'92376	9	2
59	9'73591	20	9'81224	28	10'18776	9'92367	8	1
60	9'73611		9'81252		10'18748	9'92359		0
/	Cosine.		Cotang.		Tang.	Sine.		/

33°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9'73611		9'81252		10'18748	9'92359	8	60
1	9'73630	19	9'81279	27	10'18721	9'92351	8	59
2	9'73650	20	9'81307	28	10'18693	9'92343	8	58
3	9'73669	19	9'81335	28	10'18665	9'92335	8	57
4	9'73689	20	9'81362	27	10'18638	9'92326	9	56
5	9'73708	19	9'81390	28	10'18610	9'92318	8	55
6	9'73727	19	9'81418	28	10'18582	9'92310	8	54
		20		27			8	
7	9'73747		9'81445		10'18555	9'92302		53
8	9'73766	19	9'81473	28	10'18527	9'92293	9	52
9	9'73785	19	9'81500	27	10'18500	9'92285	8	51
		20		28			8	
10	9'73805		9'81528		10'18472	9'92277		50
11	9'73824	19	9'81556	28	10'18444	9'92269	8	49
12	9'73843	19	9'81583	27	10'18417	9'92260	9	48
		20		28			8	
13	9'73863		9'81611		10'18389	9'92252		47
14	9'73882	19	9'81638	27	10'18362	9'92244	8	46
15	9'73901	19	9'81666	28	10'18334	9'92235	9	45
16	9'73921	20	9'81693	27	10'18307	9'92227	8	44
17	9'73940	19	9'81721	28	10'18279	9'92219	8	43
18	9'73959	19	9'81748	27	10'18252	9'92211	9	42
		20		28				
19	9'73978		9'81776		10'18224	9'92202		41
20	9'73997	19	9'81803	27	10'18197	9'92194	8	40
21	9'74017	20	9'81831	28	10'18169	9'92186	8	39
22	9'74036	19	9'81858	27	10'18142	9'92177	9	38
23	9'74055	19	9'81886	28	10'18114	9'92169	8	37
24	9'74074	19	9'81913	27	10'18087	9'92161	8	36
		20		28			9	
25	9'74093		9'81941		10'18059	9'92152		35
26	9'74113	20	9'81968	27	10'18032	9'92144	8	34
27	9'74132	19	9'81996	28	10'18004	9'92136	8	33
28	9'74151	19	9'82023	27	10'17977	9'92127	9	32
29	9'74170	19	9'82051	28	10'17949	9'92119	8	31
30	9'74189	19	9'82078	27	10'17922	9'92111		30
/	Cosine.		Cotang.		Tang.	Sine.		/

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/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'74189		9'82078		10'17922	9'92111		30
31	9'74208	19	9'82106	28	10'17894	9'92102	9	29
32	9'74227	19	9'82133	27	10'17867	9'92094	8	28
33	9'74246	19	9'82161	28	10'17839	9'92086	8	27
34	9'74265	19	9'82188	27	10'17812	9'92077	9	26
35	9'74284	19	9'82215	27	10'17785	9'92069	8	25
36	9'74303	19	9'82243	28	10'17757	9'92060	9	24
		19		27			8	
37	9'74322		9'82270		10'17730	9'92052		23
38	9'74341	19	9'82298	28	10'17702	9'92044	8	22
39	9'74360	19	9'82325	27	10'17675	9'92035	9	21
40	9'74379	19	9'82352	27	10'17648	9'92027	8	20
41	9'74398	19	9'82380	28	10'17620	9'92018	9	19
42	9'74417	19	9'82407	27	10'17593	9'92010	8	18
		19		28			8	
43	9'74436		9'82435		10'17565	9'92002		17
44	9'74455	19	9'82462	27	10'17538	9'91993	9	16
45	9'74474	19	9'82489	27	10'17511	9'91985	8	15
46	9'74493	19	9'82517	28	10'17483	9'91976	8	14
47	9'74512	19	9'82544	27	10'17456	9'91968	9	13
48	9'74531	19	9'82571	27	10'17429	9'91959	8	12
		18		28			8	
49	9'74549		9'82599		10'17401	9'91951		11
50	9'74568	19	9'82626	27	10'17374	9'91942	9	10
51	9'74587	19	9'82653	27	10'17347	9'91934	8	9
52	9'74606	19	9'82681	28	10'17319	9'91925	9	8
53	9'74625	19	9'82708	27	10'17292	9'91917	8	7
54	9'74644	19	9'82735	27	10'17265	9'91908	9	6
		18		27			8	
55	9'74662		9'82762		10'17238	9'91900		5
56	9'74681	19	9'82790	28	10'17210	9'91891	9	4
57	9'74700	19	9'82817	27	10'17183	9'91883	8	3
58	9'74719	19	9'82844	27	10'17156	9'91874	9	2
59	9'74737	18	9'82871	27	10'17129	9'91866	8	1
60	9'74756	19	9'82899	28	10'17101	9'91857	9	0
/	Cosine.		Cotang.		Tang.	Sine.		/

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34°

/	Sine.	D.	Tang.	D.C.	Cotang.	Cosine.	D.	/
0	9°74756	19	9°82899	27	10°17101	9°91857	8	60
1	9°74775	19	9°82926	27	10°17074	9°91849	9	59
2	9°74794	18	9°82953	27	10°17047	9°91840	8	58
3	9°74812	19	9°82980	28	10°17020	9°91832	9	57
4	9°74831	19	9°83008	27	10°16992	9°91823	8	56
5	9°74850	18	9°83035	27	10°16965	9°91815	9	55
6	9°74868	19	9°83062	27	10°16938	9°91806	8	54
7	9°74887	19	9°83089	28	10°16911	9°91798	9	53
8	9°74906	18	9°83117	27	10°16883	9°91789	8	52
9	9°74924	19	9°83144	27	10°16856	9°91781	9	51
10	9°74943	18	9°83171	27	10°16829	9°91772	9	50
11	9°74961	19	9°83198	27	10°16802	9°91763	8	49
12	9°74980	19	9°83225	27	10°16775	9°91755	9	48
13	9°74999	18	9°83252	28	10°16748	9°91746	8	47
14	9°75017	19	9°83280	27	10°16720	9°91738	9	46
15	9°75036	18	9°83307	27	10°16693	9°91729	9	45
16	9°75054	19	9°83334	27	10°16666	9°91720	8	44
17	9°75073	18	9°83361	27	10°16639	9°91712	9	43
18	9°75091	19	9°83388	27	10°16612	9°91703	8	42
19	9°75110	18	9°83415	27	10°16585	9°91695	9	41
20	9°75128	19	9°83442	28	10°16558	9°91686	9	40
21	9°75147	18	9°83470	27	10°16530	9°91677	8	39
22	9°75165	19	9°83497	27	10°16503	9°91669	9	38
23	9°75184	18	9°83524	27	10°16476	9°91660	9	37
24	9°75202	19	9°83551	27	10°16449	9°91651	8	36
25	9°75221	18	9°83578	27	10°16422	9°91643	9	35
26	9°75239	19	9°83605	27	10°16395	9°91634	9	34
27	9°75258	18	9°83632	27	10°16368	9°91625	8	33
28	9°75276	18	9°83659	27	10°16341	9°91617	9	32
29	9°75294	19	9°83686	27	10°16314	9°91608	9	31
30	9°75313		9°83713	27	10°16287	9°91599		30
/	Cosine.		Cotang.		Tang.	Sine.		/

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34°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D	/
30	9°75313	18	9°83713	27	10°16287	9°91599	8	30
31	9°75331	19	9°83740	28	10°16260	9°91591	9	29
32	9°75350	18	9°83768	27	10°16232	9°91582	9	28
33	9°75368	18	9°83795	27	10°16205	9°91573	8	27
34	9°75386	19	9°83822	27	10°16178	9°91565	9	26
35	9°75405	18	9°83849	27	10°16151	9°91556	9	25
36	9°75423	18	9°83876	27	10°16124	9°91547	9	24
37	9°75441	18	9°83903	27	10°16097	9°91538	8	23
38	9°75459	19	9°83930	27	10°16070	9°91530	9	22
39	9°75478	18	9°83957	27	10°16043	9°91521	9	21
40	9°75496	18	9°83984	27	10°16016	9°91512	8	20
41	9°75514	19	9°84011	27	10°15989	9°91504	9	19
42	9°75533	18	9°84038	27	10°15962	9°91495	9	18
43	9°75551	18	9°84065	27	10°15935	9°91486	9	17
44	9°75569	18	9°84092	27	10°15908	9°91477	8	16
45	9°75587	18	9°84119	27	10°15881	9°91469	8	15
46	9°75605	19	9°84146	27	10°15854	9°91460	9	14
47	9°75624	18	9°84173	27	10°15827	9°91451	9	13
48	9°75642	18	9°84200	27	10°15800	9°91442	9	12
49	9°75660	18	9°84227	27	10°15773	9°91433	8	11
50	9°75678	18	9°84254	26	10°15746	9°91425	9	10
51	9°75696	18	9°84280	27	10°15720	9°91416	9	9
52	9°75714	19	9°84307	27	10°15693	9°91407	9	8
53	9°75733	18	9°84334	27	10°15666	9°91398	9	7
54	9°75751	18	9°84361	27	10°15639	9°91389	8	6
55	9°75769	18	9°84388	27	10°15612	9°91381	9	5
56	9°75787	18	9°84415	27	10°15585	9°91372	9	4
57	9°75805	18	9°84442	27	10°15558	9°91363	9	3
58	9°75823	18	9°84469	27	10°15531	9°91354	9	2
59	9°75841	18	9°84496	27	10°15504	9°91345	9	1
60	9°75859	18	9°84523	27	10°15477	9°91336	9	0
/	Cosine.		Cotang.		Tang.	Sine.		/

55°

35°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9°75859	18	9°84523	27	10°15477	9°91336	8	60
1	9°75877	18	9°84550	26	10°15450	9°91328	9	59
2	9°75895	18	9°84576	27	10°15424	9°91319	9	58
3	9°75913	18	9°84603	27	10°15397	9°91310	9	57
4	9°75931	18	9°84630	27	10°15370	9°91301	9	56
5	9°75949	18	9°84657	27	10°15343	9°91292	9	55
6	9°75967	18	9°84684	27	10°15316	9°91283	9	54
7	9°75985	18	9°84711	27	10°15289	9°91274	8	53
8	9°76003	18	9°84738	26	10°15262	9°91266	9	52
9	9°76021	18	9°84764	27	10°15236	9°91257	9	51
10	9°76039	18	9°84791	27	10°15209	9°91248	9	50
11	9°76057	18	9°84818	27	10°15182	9°91239	9	49
12	9°76075	18	9°84845	27	10°15155	9°91230	9	48
13	9°76093	18	9°84872	27	10°15128	9°91221	9	47
14	9°76111	18	9°84899	26	10°15101	9°91212	9	46
15	9°76129	17	9°84925	27	10°15075	9°91203	9	45
16	9°76146	18	9°84952	27	10°15048	9°91194	9	44
17	9°76164	18	9°84979	27	10°15021	9°91185	9	43
18	9°76182	18	9°85006	27	10°14994	9°91176	9	42
19	9°76200	18	9°85033	26	10°14967	9°91167	9	41
20	9°76218	18	9°85059	27	10°14941	9°91158	9	40
21	9°76236	17	9°85086	27	10°14914	9°91149	8	39
22	9°76253	18	9°85113	27	10°14887	9°91141	9	38
23	9°76271	18	9°85140	26	10°14860	9°91132	9	37
24	9°76289	18	9°85166	27	10°14834	9°91123	9	36
25	9°76307	17	9°85193	27	10°14807	9°91114	9	35
26	9°76324	18	9°85220	27	10°14780	9°91105	9	34
27	9°76342	18	9°85247	26	10°14753	9°91096	9	33
28	9°76360	18	9°85273	27	10°14727	9°91087	9	32
29	9°76378	17	9°85300	27	10°14700	9°91078	9	31
30	9°76395		9°85327	27	10°14673	9°91069	9	30
/	Cosine.		Cotang.		Tang.	Sine.	/	

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/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9.76395	18	9.85327	27	10.14673	9.91069	9	30
31	9.76413	18	9.85354	26	10.14646	9.91060	9	29
32	9.76431	17	9.85380	27	10.14620	9.91051	9	28
33	9.76448	18	9.85407	27	10.14593	9.91042	9	27
34	9.76466	18	9.85434	26	10.14566	9.91033	10	26
35	9.76484	17	9.85460	27	10.14540	9.91023	9	25
36	9.76501	18	9.85487	27	10.14513	9.91014	9	24
37	9.76519	18	9.85514	26	10.14486	9.91005	9	23
38	9.76537	17	9.85540	27	10.14460	9.90996	9	22
39	9.76554	18	9.85567	27	10.14433	9.90987	9	21
40	9.76572	18	9.85594	26	10.14406	9.90978	9	20
41	9.76590	17	9.85620	27	10.14380	9.90969	9	19
42	9.76607	18	9.85647	27	10.14353	9.90960	9	18
43	9.76625	17	9.85674	26	10.14326	9.90951	9	17
44	9.76642	18	9.85700	27	10.14300	9.90942	9	16
45	9.76660	17	9.85727	27	10.14273	9.90933	9	15
46	9.76677	18	9.85754	26	10.14246	9.90924	9	14
47	9.76695	17	9.85780	27	10.14220	9.90915	9	13
48	9.76712	18	9.85807	27	10.14193	9.90906	10	12
49	9.76730	17	9.85834	26	10.14166	9.90896	9	11
50	9.76747	18	9.85860	27	10.14140	9.90887	9	10
51	9.76765	17	9.85887	26	10.14113	9.90878	9	9
52	9.76782	18	9.85913	27	10.14087	9.90869	9	8
53	9.76800	17	9.85940	27	10.14060	9.90860	9	7
54	9.76817	18	9.85967	26	10.14033	9.90851	9	6
55	9.76835	17	9.85993	27	10.14007	9.90842	10	5
56	9.76852	18	9.86020	26	10.13980	9.90832	9	4
57	9.76870	17	9.86046	27	10.13954	9.90823	9	3
58	9.76887	17	9.86073	27	10.13927	9.90814	9	2
59	9.76904	18	9.86100	26	10.13900	9.90805	9	1
60	9.76922		9.86126		10.13874	9.90796		0
/	Cosine.		Cotang.		Tang.	Sine.		/

36°

'	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	'
0	9°76922		9°86126		10°13874	9°90796		60
1	9°76939	17	9°86153	27	10°13847	9°90787	9	59
2	9°76957	18	9°86179	26	10°13821	9°90777	10	58
3	9°76974	17	9°86206	27	10°13794	9°90768	9	57
4	9°76991	17	9°86232	26	10°13768	9°90759	9	56
5	9°77009	18	9°86259	27	10°13741	9°90750	9	55
6	9°77026	17	9°86285	26	10°13715	9°90741	9	54
		17		27			10	
7	9°77043		9°86312		10°13688	9°90731		53
8	9°77061	18	9°86338	26	10°13662	9°90722	9	52
9	9°77078	17	9°86365	27	10°13635	9°90713	9	51
		17		27			9	
10	9°77095		9°86392		10°13608	9°90704		50
11	9°77112	17	9°86418	26	10°13582	9°90694	10	49
12	9°77130	18	9°86445	27	10°13555	9°90685	9	48
		17		26			9	
13	9°77147		9°86471		10°13529	9°90676		47
14	9°77164	17	9°86498	27	10°13502	9°90667	9	46
15	9°77181	17	9°86524	26	10°13476	9°90657	10	45
16	9°77199	18	9°86551	27	10°13449	9°90648	9	44
17	9°77216	17	9°86577	26	10°13423	9°90639	9	43
18	9°77233	17	9°86603	26	10°13397	9°90630	9	42
		17		27			10	
19	9°77250		9°86630		10°13370	9°90620		41
20	9°77268	18	9°86656	26	10°13344	9°90611	9	40
21	9°77285	17	9°86683	27	10°13317	9°90602	9	39
22	9°77302	17	9°86709	26	10°13291	9°90592	10	38
23	9°77319	17	9°86736	27	10°13264	9°90583	9	37
24	9°77336	17	9°86762	26	10°13238	9°90574	9	36
		17		27			9	
25	9°77353		9°86789		10°13211	9°90565		35
26	9°77370	17	9°86815	26	10°13185	9°90555	10	34
27	9°77387	17	9°86842	27	10°13158	9°90546	9	33
28	9°77405	18	9°86868	26	10°13132	9°90537	9	32
29	9°77422	17	9°86894	26	10°13106	9°90527	10	31
30	9°77439	17	9°86921	27	10°13079	9°90518	9	30
'	Cosine.		Cotang.		Tang.	Sine.		'

36°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'77439		9'86921		10'13079	9'90518		30
31	9'77456	17	9'86947	26	10'13053	9'90509	9	29
32	9'77473	17	9'86974	27	10'13026	9'90499	10	28
33	9'77490	17	9'87000	26	10'13000	9'90490	9	27
34	9'77507	17	9'87027	27	10'12973	9'90480	10	26
35	9'77524	17	9'87053	26	10'12947	9'90471	9	25
36	9'77541	17	9'87079	26	10'12921	9'90462	9	24
		17		27			10	
37	9'77558		9'87106		10'12894	9'90452		23
38	9'77575	17	9'87132	26	10'12868	9'90443	9	22
39	9'77592	17	9'87158	26	10'12842	9'90434	9	21
40	9'77609	17	9'87185	27	10'12815	9'90424	10	20
41	9'77626	17	9'87211	26	10'12789	9'90415	9	19
42	9'77643	17	9'87238	27	10'12762	9'90405	10	18
		17		26			9	
43	9'77660		9'87264		10'12736	9'90396		17
44	9'77677	17	9'87290	26	10'12710	9'90386	10	16
45	9'77694	17	9'87317	27	10'12683	9'90377	9	15
46	9'77711	17	9'87343	26	10'12657	9'90368	9	14
47	9'77728	17	9'87369	26	10'12631	9'90358	10	13
48	9'77744	16	9'87396	27	10'12604	9'90349	9	12
		17		26			10	
49	9'77761		9'87422		10'12578	9'90339		11
50	9'77778	17	9'87448	26	10'12552	9'90330	9	10
51	9'77795	17	9'87475	27	10'12525	9'90320	10	9
52	9'77812	17	9'87501	26	10'12499	9'90311	9	8
53	9'77829	17	9'87527	26	10'12473	9'90301	10	7
54	9'77846	17	9'87554	27	10'12446	9'90292	9	6
		16		26			10	
55	9'77862		9'87580		10'12420	9'90282		5
56	9'77879	17	9'87606	26	10'12394	9'90273	9	4
57	9'77896	17	9'87633	27	10'12367	9'90263	10	3
58	9'77913	17	9'87659	26	10'12341	9'90254	9	2
59	9'77930	17	9'87685	26	10'12315	9'90244	10	1
60	9'77946	16	9'87711	26	10'12289	9'90235	9	0
/	Cosine.		Cotang.		Tang.	Sine.		/

37°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9·77946		9·87711		10·12289	9·90235		60
1	9·77963	17	9·87738	27	10·12262	9·90225	10	59
2	9·77980	17	9·87764	26	10·12236	9·90216	9	58
3	9·77997	17	9·87790	26	10·12210	9·90206	10	57
4	9·78013	16	9·87817	27	10·12183	9·90197	9	56
5	9·78030	17	9·87843	26	10·12157	9·90187	10	55
6	9·78047	17	9·87869	26	10·12131	9·90178	9	54
		16		26			10	
7	9·78063		9·87895		10·12105	9·90168		53
8	9·78080	17	9·87922	27	10·12078	9·90159	9	52
9	9·78097	17	9·87948	26	10·12052	9·90149	10	51
10	9·78113	16	9·87974	26	10·12026	9·90139	10	50
11	9·78130	17	9·88000	26	10·12000	9·90130	9	49
12	9·78147	17	9·88027	27	10·11973	9·90120	10	48
		16		26			9	
13	9·78163		9·88053		10·11947	9·90111		47
14	9·78180	17	9·88079	26	10·11921	9·90101	10	46
15	9·78197	17	9·88105	26	10·11895	9·90091	10	45
16	9·78213	16	9·88131	26	10·11869	9·90082	9	44
17	9·78230	17	9·88158	27	10·11842	9·90072	10	43
18	9·78246	16	9·88184	26	10·11816	9·90063	9	42
		17		26			10	
19	9·78263		9·88210		10·11790	9·90053		41
20	9·78280	17	9·88236	26	10·11764	9·90043	10	40
21	9·78296	16	9·88262	26	10·11738	9·90034	9	39
22	9·78313	17	9·88289	27	10·11711	9·90024	10	38
23	9·78329	16	9·88315	26	10·11685	9·90014	10	37
24	9·78346	17	9·88341	26	10·11659	9·90005	9	36
		16		26			10	
25	9·78362		9·88367		10·11633	9·89995		35
26	9·78379	17	9·88393	26	10·11607	9·89985	10	34
27	9·78395	16	9·88420	27	10·11580	9·89976	9	33
28	9·78412	17	9·88446	26	10·11554	9·89966	10	32
29	9·78428	16	9·88472	26	10·11528	9·89956	10	31
30	9·78445	17	9·88498	26	10·11502	9·89947	9	30
/	Cosine.		Cotang.		Tang.	Sine.		/

37°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9·78445	16	9·88498	26	10·11502	9·89947	10	30
31	9·78461	17	9·88524	26	10·11476	9·89937	10	29
32	9·78478	16	9·88550	27	10·11450	9·89927	9	28
33	9·78494	16	9·88577	26	10·11423	9·89918	10	27
34	9·78510	17	9·88603	26	10·11397	9·89908	10	26
35	9·78527	16	9·88629	26	10·11371	9·89898	10	25
36	9·78543	17	9·88655	26	10·11345	9·89888	9	24
37	9·78560	16	9·88681	26	10·11319	9·89879	10	23
38	9·78576	16	9·88707	26	10·11293	9·89869	10	22
39	9·78592	17	9·88733	26	10·11267	9·89859	10	21
40	9·78609	16	9·88759	27	10·11241	9·89849	9	20
41	9·78625	17	9·88786	26	10·11214	9·89840	10	19
42	9·78642	16	9·88812	26	10·11188	9·89830	10	18
43	9·78658	16	9·88838	26	10·11162	9·89820	10	17
44	9·78674	17	9·88864	26	10·11136	9·89810	9	16
45	9·78691	16	9·88890	26	10·11110	9·89801	10	15
46	9·78707	16	9·88916	26	10·11084	9·89791	10	14
47	9·78723	16	9·88942	26	10·11058	9·89781	10	13
48	9·78739	17	9·88968	26	10·11032	9·89771	10	12
49	9·78756	16	9·88994	26	10·11006	9·89761	9	11
50	9·78772	16	9·89020	26	10·10980	9·89752	10	10
51	9·78788	17	9·89046	27	10·10954	9·89742	10	9
52	9·78805	16	9·89073	26	10·10927	9·89732	10	8
53	9·78821	16	9·89099	26	10·10901	9·89722	10	7
54	9·78837	16	9·89125	26	10·10875	9·89712	10	6
55	9·78853	16	9·89151	26	10·10849	9·89702	9	5
56	9·78869	17	9·89177	26	10·10823	9·89693	10	4
57	9·78886	16	9·89203	26	10·10797	9·89683	10	3
58	9·78902	16	9·89229	26	10·10771	9·89673	10	2
59	9·78918	16	9·89255	26	10·10745	9·89663	10	1
60	9·78934		9·89281	26	10·10719	9·89653		0
/	Cosine.		Cotang.		Tang.	Sine.	/	

38°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9°78934	16	9°89281	26	10°10719	9°89653	10	60
1	9°78950	17	9°89307	26	10°10693	9°89643	10	59
2	9°78967	16	9°89333	26	10°10667	9°89633	10	58
3	9°78983	16	9°89359	26	10°10641	9°89624	9	57
4	9°78999	16	9°89385	26	10°10615	9°89614	10	56
5	9°79015	16	9°89411	26	10°10589	9°89604	10	55
6	9°79031	16	9°89437	26	10°10563	9°89594	10	54
7	9°79047	16	9°89463	26	10°10537	9°89584	10	53
8	9°79063	16	9°89489	26	10°10511	9°89574	10	52
9	9°79079	16	9°89515	26	10°10485	9°89564	10	51
10	9°79095	16	9°89541	26	10°10459	9°89554	10	50
11	9°79111	17	9°89567	26	10°10433	9°89544	10	49
12	9°79128	16	9°89593	26	10°10407	9°89534	10	48
13	9°79144	16	9°89619	26	10°10381	9°89524	10	47
14	9°79160	16	9°89645	26	10°10355	9°89514	10	46
15	9°79176	16	9°89671	26	10°10329	9°89504	9	45
16	9°79192	16	9°89697	26	10°10303	9°89495	10	44
17	9°79208	16	9°89723	26	10°10277	9°89485	10	43
18	9°79224	16	9°89749	26	10°10251	9°89475	10	42
19	9°79240	16	9°89775	26	10°10225	9°89465	10	41
20	9°79256	16	9°89801	26	10°10199	9°89455	10	40
21	9°79272	16	9°89827	26	10°10173	9°89445	10	39
22	9°79288	16	9°89853	26	10°10147	9°89435	10	38
23	9°79304	15	9°89879	26	10°10121	9°89425	10	37
24	9°79319	16	9°89905	26	10°10095	9°89415	10	36
25	9°79335	16	9°89931	26	10°10069	9°89405	10	35
26	9°79351	16	9°89957	26	10°10043	9°89395	10	34
27	9°79367	16	9°89983	26	10°10017	9°89385	10	33
28	9°79383	16	9°90009	26	10°09991	9°89375	11	32
29	9°79399	16	9°90035	26	10°09965	9°89364	10	31
30	9°79415		9°90061		10°09939	9°89354		30
/	Cosine.		Cotang.		Tang.	Sine.	/	

38°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9°79415	16	9°90061	25	10°09939	9°89354	10	30
31	9°79431	16	9°90086	26	10°09914	9°89344	10	29
32	9°79447	16	9°90112	26	10°09888	9°89334	10	28
33	9°79463	15	9°90138	26	10°09862	9°89324	10	27
34	9°79478	16	9°90164	26	10°09836	9°89314	10	26
35	9°79494	16	9°90190	26	10°09810	9°89304	10	25
36	9°79510	16	9°90216	26	10°09784	9°89294	10	24
37	9°79526	16	9°90242	26	10°09758	9°89284	10	23
38	9°79542	16	9°90268	26	10°09732	9°89274	10	22
39	9°79558	15	9°90294	26	10°09706	9°89264	10	21
40	9°79573	16	9°90320	26	10°09680	9°89254	10	20
41	9°79589	16	9°90346	25	10°09654	9°89244	11	19
42	9°79605	16	9°90371	26	10°09629	9°89233	10	18
43	9°79621	15	9°90397	26	10°09603	9°89223	10	17
44	9°79636	16	9°90423	26	10°09577	9°89213	10	16
45	9°79652	16	9°90449	26	10°09551	9°89203	10	15
46	9°79668	16	9°90475	26	10°09525	9°89193	10	14
47	9°79684	15	9°90501	26	10°09499	9°89183	10	13
48	9°79699	16	9°90527	26	10°09473	9°89173	11	12
49	9°79715	16	9°90553	25	10°09447	9°89162	10	11
50	9°79731	15	9°90578	26	10°09422	9°89152	10	10
51	9°79746	16	9°90604	26	10°09396	9°89142	10	9
52	9°79762	16	9°90630	26	10°09370	9°89132	10	8
53	9°79778	15	9°90656	26	10°09344	9°89122	10	7
54	9°79793	16	9°90682	26	10°09318	9°89112	11	6
55	9°79809	16	9°90708	26	10°09292	9°89101	10	5
56	9°79825	15	9°90734	25	10°09266	9°89091	10	4
57	9°79840	16	9°90759	26	10°09241	9°89081	10	3
58	9°79856	16	9°90785	26	10°09215	9°89071	11	2
59	9°79872	15	9°90811	26	10°09189	9°89060	10	1
60	9°79887		9°90837		10°09163	9°89050		0
/	Cosine.		Cotang.		Tang.	Sine.	/	

51°

39°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	979887	16	990837	26	1009163	989050	10	60
1	979903	15	990863	26	1009137	989040	10	59
2	979918	16	990889	25	1009111	989030	10	58
3	979934	16	990914	26	1009086	989020	11	57
4	979950	15	990940	26	1009060	989009	10	56
5	979965	16	990966	26	1009034	988999	10	55
6	979981	15	990992	26	1009008	988989	11	54
7	979996	16	991018	25	1008982	988978	10	53
8	980012	15	991043	26	1008957	988968	10	52
9	980027	16	991069	26	1008931	988958	10	51
10	980043	15	991095	26	1008905	988948	11	50
11	980058	16	991121	26	1008879	988937	10	49
12	980074	15	991147	25	1008853	988927	10	48
13	980089	16	991172	26	1008828	988917	11	47
14	980105	15	991198	26	1008802	988906	10	46
15	980120	16	991224	26	1008776	988896	10	45
16	980136	15	991250	26	1008750	988886	11	44
17	980151	15	991276	26	1008724	988875	10	43
18	980166	16	991301	25	1008699	988865	10	42
19	980182	15	991327	26	1008673	988855	11	41
20	980197	16	991353	26	1008647	988844	10	40
21	980213	15	991379	25	1008621	988834	10	39
22	980228	16	991404	26	1008596	988824	11	38
23	980244	15	991430	26	1008570	988813	10	37
24	980259	15	991456	26	1008544	988803	10	36
25	980274	16	991482	25	1008518	988793	11	35
26	980290	15	991507	26	1008493	988782	10	34
27	980305	15	991533	26	1008467	988772	11	33
28	980320	16	991559	26	1008441	988761	10	32
29	980336	15	991585	25	1008415	988751	10	31
30	980351		991610		1008390	988741		30
/	Cosine.		Cotang.		Tang.	Sine.	/	

50°

39°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'80351		9'91610		10'08390	9'88741		30
31	9'80366	15	9'91636	26	10'08364	9'88730	11	29
32	9'80382	16	9'91662	26	10'08338	9'88720	10	28
33	9'80397	15	9'91688	26	10'08312	9'88709	11	27
34	9'80412	15	9'91713	25	10'08287	9'88699	10	26
35	9'80428	16	9'91739	26	10'08261	9'88688	11	25
36	9'80443	15	9'91765	26	10'08235	9'88678	10	24
37	9'80458		9'91791		10'08209	9'88668		23
38	9'80473	15	9'91816	25	10'08184	9'88657	11	22
39	9'80489	16	9'91842	26	10'08158	9'88647	10	21
40	9'80504	15	9'91868	26	10'08132	9'88636	11	20
41	9'80519	15	9'91893	25	10'08107	9'88626	10	19
42	9'80534	16	9'91919	26	10'08081	9'88615	11	18
43	9'80550		9'91945		10'08055	9'88605		17
44	9'80565	15	9'91971	26	10'08029	9'88594	11	16
45	9'80580	15	9'91996	25	10'08004	9'88584	10	15
46	9'80595	16	9'92022	26	10'07978	9'88573	11	14
47	9'80610	15	9'92048	26	10'07952	9'88563	10	13
48	9'80625	15	9'92073	25	10'07927	9'88552	11	12
49	9'80641	16	9'92099	26	10'07901	9'88542	10	11
50	9'80656	15	9'92125	26	10'07875	9'88531	11	10
51	9'80671	15	9'92150	25	10'07850	9'88521	10	9
52	9'80686	16	9'92176	26	10'07824	9'88510	11	8
53	9'80701	15	9'92202	26	10'07798	9'88499	10	7
54	9'80716	15	9'92227	25	10'07773	9'88489	11	6
55	9'80731	16	9'92253	26	10'07747	9'88478	10	5
56	9'80746	15	9'92279	25	10'07721	9'88468	11	4
57	9'80762	16	9'92304	26	10'07696	9'88457	10	3
58	9'80777	15	9'92330	26	10'07670	9'88447	11	2
59	9'80792	15	9'92356	25	10'07644	9'88436	10	1
60	9'80807	15	9'92381	25	10'07619	9'88425	11	0
/	Cosine.		Cotang.		Tang.	Sine.		/

50°

40°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9.80807	15	9.92381	26	10.07619	9.88425	10	60
1	9.80822	15	9.92407	26	10.07593	9.88415	11	59
2	9.80837	15	9.92433	25	10.07567	9.88404	10	58
3	9.80852	15	9.92458	26	10.07542	9.88394	11	57
4	9.80867	15	9.92484	26	10.07516	9.88383	11	56
5	9.80882	15	9.92510	25	10.07490	9.88372	10	55
6	9.80897	15	9.92535	26	10.07465	9.88362	11	54
7	9.80912	15	9.92561	26	10.07439	9.88351	11	53
8	9.80927	15	9.92587	25	10.07413	9.88340	10	52
9	9.80942	15	9.92612	26	10.07388	9.88330	11	51
10	9.80957	15	9.92638	25	10.07362	9.88319	11	50
11	9.80972	15	9.92663	26	10.07337	9.88308	10	49
12	9.80987	15	9.92689	26	10.07311	9.88298	11	48
13	9.81002	15	9.92715	25	10.07285	9.88287	11	47
14	9.81017	15	9.92740	26	10.07260	9.88276	10	46
15	9.81032	15	9.92766	26	10.07234	9.88266	11	45
16	9.81047	14	9.92792	25	10.07208	9.88255	11	44
17	9.81061	15	9.92817	26	10.07183	9.88244	10	43
18	9.81076	15	9.92843	25	10.07157	9.88234	11	42
19	9.81091	15	9.92868	26	10.07132	9.88223	11	41
20	9.81106	15	9.92894	26	10.07106	9.88212	11	40
21	9.81121	15	9.92920	25	10.07080	9.88201	10	39
22	9.81136	15	9.92945	26	10.07055	9.88191	11	38
23	9.81151	15	9.92971	25	10.07029	9.88180	11	37
24	9.81166	14	9.92996	26	10.07004	9.88169	11	36
25	9.81180	15	9.93022	26	10.06978	9.88158	10	35
26	9.81195	15	9.93048	25	10.06952	9.88148	11	34
27	9.81210	15	9.93073	26	10.06927	9.88137	11	33
28	9.81225	15	9.93099	25	10.06901	9.88126	11	32
29	9.81240	14	9.93124	26	10.06876	9.88115	10	31
30	9.81254		9.93150		10.06850	9.88105		30
/	Cosine.		Cotang.		Tang.	Sine.		/

49°

40°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'81254		9'93150		10'06850	9'88105		30
31	9'81269	15	9'93175	25	10'06825	9'88094	11	29
32	9'81284	15	9'93201	26	10'06799	9'88083	11	28
33	9'81299	15	9'93227	25	10'06773	9'88072	11	27
34	9'81314	15	9'93252	26	10'06748	9'88061	10	26
35	9'81328	15	9'93278	25	10'06722	9'88051	11	25
36	9'81343	15	9'93303	26	10'06697	9'88040	11	24
37	9'81358		9'93329		10'06671	9'88029		23
38	9'81372	14	9'93354	25	10'06646	9'88018	11	22
39	9'81387	15	9'93380	26	10'06620	9'88007	11	21
40	9'81402	15	9'93406	25	10'06594	9'87996	11	20
41	9'81417	14	9'93431	26	10'06569	9'87985	10	19
42	9'81431	15	9'93457	25	10'06543	9'87975	11	18
43	9'81446		9'93482		10'06518	9'87964		17
44	9'81461	15	9'93508	26	10'06492	9'87953	11	16
45	9'81475	14	9'93533	25	10'06467	9'87942	11	15
46	9'81490	15	9'93559	26	10'06441	9'87931	11	14
47	9'81505	15	9'93584	25	10'06416	9'87920	11	13
48	9'81519	14	9'93610	26	10'06390	9'87909	11	12
49	9'81534		9'93636		10'06364	9'87898		11
50	9'81549	15	9'93661	25	10'06339	9'87887	11	10
51	9'81563	14	9'93687	26	10'06313	9'87877	10	9
52	9'81578	15	9'93712	25	10'06288	9'87866	11	8
53	9'81592	14	9'93738	26	10'06262	9'87855	11	7
54	9'81607	15	9'93763	25	10'06237	9'87844	11	6
55	9'81622		9'93789		10'06211	9'87833		5
56	9'81636	14	9'93814	25	10'06186	9'87822	11	4
57	9'81651	15	9'93840	26	10'06160	9'87811	11	3
58	9'81665	14	9'93865	25	10'06135	9'87800	11	2
59	9'81680	15	9'93891	26	10'06109	9'87789	11	1
60	9'81694	14	9'93916	25	10'06084	9'87778	11	0
/	Cosine.		Cotang.		Tang.	Sine.		/

49°

41°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9'81694		9'93916	26	10'06084	9'87778		60
1	9'81709	15	9'93942	25	10'06058	9'87767	11	59
2	9'81723	14	9'93967	26	10'06033	9'87756	11	58
3	9'81738	15	9'93993	25	10'06007	9'87745	11	57
4	9'81752	14	9'94018	26	10'05982	9'87734	11	56
5	9'81767	15	9'94044	25	10'05956	9'87723	11	55
6	9'81781	14	9'94069	26	10'05931	9'87712	11	54
7	9'81796		9'94095	25	10'05905	9'87701		53
8	9'81810	14	9'94120	26	10'05880	9'87690	11	52
9	9'81825	15	9'94146	25	10'05854	9'87679	11	51
10	9'81839	14	9'94171	26	10'05829	9'87668	11	50
11	9'81854	15	9'94197	25	10'05803	9'87657	11	49
12	9'81868	14	9'94222	26	10'05778	9'87646	11	48
13	9'81882		9'94248	25	10'05752	9'87635		47
14	9'81897	15	9'94273	26	10'05727	9'87624	11	46
15	9'81911	14	9'94299	25	10'05701	9'87613	11	45
16	9'81926	15	9'94324	26	10'05676	9'87601	12	44
17	9'81940	14	9'94350	25	10'05650	9'87590	11	43
18	9'81955	15	9'94375	26	10'05625	9'87579	11	42
19	9'81969		9'94401	25	10'05599	9'87568		41
20	9'81983	14	9'94426	26	10'05574	9'87557	11	40
21	9'81998	15	9'94452	25	10'05548	9'87546	11	39
22	9'82012	14	9'94477	26	10'05523	9'87535	11	38
23	9'82026	15	9'94503	25	10'05497	9'87524	11	37
24	9'82041	14	9'94528	26	10'05472	9'87513	12	36
25	9'82055		9'94554	25	10'05446	9'87501		35
26	9'82069	14	9'94579	26	10'05421	9'87490	11	34
27	9'82084	15	9'94604	25	10'05396	9'87479	11	33
28	9'82098	14	9'94630	26	10'05370	9'87468	11	32
29	9'82112	15	9'94655	25	10'05345	9'87457	11	31
30	9'82126	14	9'94681	26	10'05319	9'87446	11	30
/	Cosine.		Cotang.		Tang.	Sine.		/

48°

41°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'82126		9'94681		10'05319	9'87446		30
31	9'82141	15	9'94706	25	10'05294	9'87434	12	29
32	9'82155	14	9'94732	26	10'05268	9'87423	11	28
33	9'82169	14	9'94757	25	10'05243	9'87412	11	27
34	9'82184	15	9'94783	26	10'05217	9'87401	11	26
35	9'82198	14	9'94808	25	10'05192	9'87390	11	25
36	9'82212	14	9'94834	26	10'05166	9'87378	12	24
		14		25			11	
37	9'82226		9'94859		10'05141	9'87367		23
38	9'82240	14	9'94884	25	10'05116	9'87356	11	22
39	9'82255	15	9'94910	26	10'05090	9'87345	11	21
40	9'82269	14	9'94935	25	10'05065	9'87334	11	20
41	9'82283	14	9'94961	26	10'05039	9'87322	12	19
42	9'82297	14	9'94986	25	10'05014	9'87311	11	18
		14		26			11	
43	9'82311		9'95012		10'04988	9'87300		17
44	9'82326	15	9'95037	25	10'04963	9'87288	12	16
45	9'82340	14	9'95062	25	10'04938	9'87277	11	15
46	9'82354	14	9'95088	26	10'04912	9'87266	11	14
47	9'82368	14	9'95113	25	10'04887	9'87255	11	13
48	9'82382	14	9'95139	26	10'04861	9'87243	12	12
		14		25			11	
49	9'82396		9'95164		10'04836	9'87232		11
50	9'82410	14	9'95190	26	10'04810	9'87221	11	10
51	9'82424	4	9'95215	25	10'04785	9'87209	12	9
52	9'82439	15	9'95240	25	10'04760	9'87198	11	8
53	9'82453	14	9'95266	26	10'04734	9'87187	11	7
54	9'82467	14	9'95291	25	10'04709	9'87175	12	6
		14		26			11	
55	9'82481		9'95317		10'04683	9'87164		5
56	9'82495	14	9'95342	25	10'04658	9'87153	11	4
57	9'82509	14	9'95368	26	10'04632	9'87141	12	3
58	9'82523	14	9'95393	25	10'04607	9'87130	11	2
59	9'82537	14	9'95418	25	10'04582	9'87119	11	1
60	9'82551	14	9'95444	26	10'04556	9'87107	12	0
/	Cosine.		Cotang.		Tang.	Sine.		/

42°

/	Sine.	D.	Tang.	D.C.	Cotang.	Cosine.	D.	/
0	9'82551		9'95444		10'04556	9'87107		60
1	9'82565	14	9'95469	25	10'04531	9'87096	11	59
2	9'82579	14	9'95495	26	10'04505	9'87085	11	58
3	9'82593	14	9'95520	25	10'04480	9'87073	12	57
4	9'82607	14	9'95545	25	10'04455	9'87062	11	56
5	9'82621	14	9'95571	26	10'04429	9'87050	12	55
6	9'82635	14	9'95596	25	10'04404	9'87039	11	54
		14		26			11	
7	9'82649		9'95622		10'04378	9'87028		53
8	9'82663	14	9'95647	25	10'04353	9'87016	12	52
9	9'82677	14	9'95672	25	10'04328	9'87005	11	51
10	9'82691	14	9'95698	26	10'04302	9'86993	12	50
11	9'82705	14	9'95723	25	10'04277	9'86982	11	49
12	9'82719	14	9'95748	25	10'04252	9'86970	12	48
		14		26			11	
13	9'82733		9'95774		10'04226	9'86959		47
14	9'82747	14	9'95799	25	10'04201	9'86947	12	46
15	9'82761	14	9'95825	26	10'04175	9'86936	11	45
16	9'82775	14	9'95850	25	10'04150	9'86924	12	44
17	9'82788	13	9'95875	25	10'04125	9'86913	11	43
18	9'82802	14	9'95901	26	10'04099	9'86902	11	42
		14		25			12	
19	9'82816		9'95926		10'04074	9'86890		41
20	9'82830	14	9'95952	26	10'04048	9'86879	11	40
21	9'82844	14	9'95977	25	10'04023	9'86867	12	39
22	9'82858	14	9'96002	25	10'03998	9'86855	12	38
23	9'82872	14	9'96028	26	10'03972	9'86844	11	37
24	9'82885	13	9'96053	25	10'03947	9'86832	12	36
		14		25			11	
25	9'82899		9'96078		10'03922	9'86821		35
26	9'82913	14	9'96104	26	10'03896	9'86809	12	34
27	9'82927	14	9'96129	25	10'03871	9'86798	11	33
28	9'82941	14	9'96155	26	10'03845	9'86786	12	32
29	9'82955	14	9'96180	25	10'03820	9'86775	11	31
30	9'82968	13	9'96205	25	10'03795	9'86763	12	30
/	Cosine.		Cotang.		Tang.	Sine.		/

42°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9.82968		9.96205	26	10.03795	9.86763		30
31	9.82982	14	9.96231	25	10.03769	9.86752	11	29
32	9.82996	14	9.96256	25	10.03744	9.86740	12	28
33	9.83010	14	9.96281	25	10.03719	9.86728	12	27
34	9.83023	13	9.96307	26	10.03693	9.86717	11	26
35	9.83037	14	9.96332	25	10.03668	9.86705	12	25
36	9.83051	14	9.96357	25	10.03643	9.86694	11	24
		14		26			12	
37	9.83065		9.96383		10.03617	9.86682		23
38	9.83078	13	9.96408	25	10.03592	9.86670	12	22
39	9.83092	14	9.96433	25	10.03567	9.86659	11	21
40	9.83106	14	9.96459	26	10.03541	9.86647	12	20
41	9.83120	14	9.96484	25	10.03516	9.86635	12	19
42	9.83133	13	9.96510	26	10.03490	9.86624	11	18
		14		25			12	
43	9.83147		9.96535		10.03465	9.86612		17
44	9.83161	14	9.96560	25	10.03440	9.86600	12	16
45	9.83174	13	9.96586	26	10.03414	9.86589	11	15
46	9.83188	14	9.96611	25	10.03389	9.86577	12	14
47	9.83202	14	9.96636	25	10.03364	9.86565	12	13
48	9.83215	13	9.96662	26	10.03338	9.86554	11	12
		14		25			12	
49	9.83229		9.96687		10.03313	9.86542		11
50	9.83242	13	9.96712	25	10.03288	9.86530	12	10
51	9.83256	14	9.96738	26	10.03262	9.86518	12	9
52	9.83270	14	9.96763	25	10.03237	9.86507	11	8
53	9.83283	13	9.96788	25	10.03212	9.86495	12	7
54	9.83297	14	9.96814	26	10.03186	9.86483	12	6
		13		25			11	
55	9.83310		9.96839		10.03161	9.86472		5
56	9.83324	14	9.96864	25	10.03136	9.86460	12	4
57	9.83338	14	9.96890	26	10.03110	9.86448	12	3
58	9.83351	13	9.96915	25	10.03085	9.86436	12	2
59	9.83365	14	9.96940	25	10.03060	9.86425	11	1
60	9.83378	13	9.96966	26	10.03034	9.86413	12	0
/	Cosine.		Cotang.		Tang.	Sine.		/

47°

43°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9'83378		9'96966		10.03034	9'86413		60
1	9'83392	14	9'96991	25	10'03009	9'86401	12	59
2	9'83405	13	9'97016	25	10'02984	9'86389	12	58
3	9'83419	14	9'97042	26	10'02958	9'86377	12	57
4	9'83432	13	9'97067	25	10'02933	9'86366	11	56
5	9'83446	14	9'97092	25	10'02908	9'86354	12	55
6	9'83459	13	9'97118	26	10'02882	9'86342	12	54
		14		25			12	
7	9'83473		9'97143		10'02857	9'86330		53
8	9'83486	13	9'97168	25	10'02832	9'86318	12	52
9	9'83500	14	9'97193	25	10'02807	9'86306	12	51
10	9'83513	13	9'97219	26	10'02781	9'86295	11	50
11	9'83527	14	9'97244	25	10'02756	9'86283	12	49
12	9'83540	13	9'97269	25	10'02731	9'86271	12	48
		14		26			12	
13	9'83554		9'97295		10'02705	9'86259		47
14	9'83567	13	9'97320	25	10'02680	9'86247	12	46
15	9'83581	14	9'97345	25	10'02655	9'86235	12	45
16	9'83594	13	9'97371	26	10'02629	9'86223	12	44
17	9'83608	14	9'97396	25	10'02604	9'86211	12	43
18	9'83621	13	9'97421	25	10'02579	9'86200	11	42
		13		26			12	
19	9'83634		9'97447		10'02553	9'86188		41
20	9'83648	14	9'97472	25	10'02528	9'86176	12	40
21	9'83661	13	9'97497	25	10'02503	9'86164	12	39
22	9'83674	13	9'97523	26	10'02477	9'86152	12	38
23	9'83688	14	9'97548	25	10'02452	9'86140	12	37
24	9'83701	13	9'97573	25	10'02427	9'86128	12	36
		14		25			12	
25	9'83715		9'97598		10'02402	9'86116		35
26	9'83728	13	9'97624	26	10'02376	9'86104	12	34
27	9'83741	13	9'97649	25	10'02351	9'86092	12	33
28	9'83755	14	9'97674	25	10'02326	9'86080	12	32
29	9'83768	13	9'97700	26	10'02300	9'86068	12	31
30	9'83781	13	9'97725	25	10'02275	9'86056	12	30
/	Cosine.		Cotang.		Tang.	Sine.		/

46°

43°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9'83781		9'97725		10'02275	9'86056		30
31	9'83795	14	9'97750	25	10'02250	9'86044	12	29
32	9'83808	13	9'97776	26	10'02224	9'86032	12	28
33	9'83821	13	9'97801	25	10'02199	9'86020	12	27
34	9'83834	13	9'97826	25	10'02174	9'86008	12	26
35	9'83848	14	9'97851	25	10'02149	9'85996	12	25
36	9'83861	13	9'97877	26	10'02123	9'85984	12	24
		13		25			12	
37	9'83874		9'97902		10'02098	9'85972		23
38	9'83887	13	9'97927	25	10'02073	9'85960	12	22
39	9'83901	14	9'97953	26	10'02047	9'85948	12	21
40	9'83914	13	9'97978	25	10'02022	9'85936	12	20
41	9'83927	13	9'98003	25	10'01997	9'85924	12	19
42	9'83940	13	9'98029	26	10'01971	9'85912	12	18
		14		25			12	
43	9'83954		9'98054		10'01946	9'85900		17
44	9'83967	13	9'98079	25	10'01921	9'85888	12	16
45	9'83980	13	9'98104	25	10'01896	9'85876	12	15
46	9'83993	13	9'98130	26	10'01870	9'85864	12	14
47	9'84006	13	9'98155	25	10'01845	9'85851	13	13
48	9'84020	14	9'98180	25	10'01820	9'85839	12	12
		13		26			12	
49	9'84033		9'98206		10'01794	9'85827		11
50	9'84046	13	9'98231	25	10'01769	9'85815	12	10
51	9'84059	13	9'98256	25	10'01744	9'85803	12	9
52	9'84072	13	9'98281	25	10'01719	9'85791	12	8
53	9'84085	13	9'98307	26	10'01693	9'85779	12	7
54	9'84098	13	9'98332	25	10'01668	9'85766	13	6
		14		25			12	
55	9'84112		9'98357		10'01643	9'85754		5
56	9'84125	13	9'98383	26	10'01617	9'85742	12	4
57	9'84138	13	9'98408	25	10'01592	9'85730	12	3
58	9'84151	13	9'98433	25	10'01567	9'85718	12	2
59	9'84164	13	9'98458	25	10'01542	9'85706	12	1
60	9'84177	13	9'98484	26	10'01516	9'85693	13	0
/	Cosine.		Cotang.		Tang.	Sine.		/

46°

44°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
0	9°84177	13	9°98484	25	10°01516	9°85693	12	60
1	9°84190	13	9°98509	25	10°01491	9°85681	12	59
2	9°84203	13	9°98534	26	10°01466	9°85669	12	58
3	9°84216	13	9°98560	25	10°01440	9°85657	12	57
4	9°84229	13	9°98585	25	10°01415	9°85645	12	56
5	9°84242	13	9°98610	25	10°01390	9°85632	12	55
6	9°84255	14	9°98635	26	10°01365	9°85620	12	54
7	9°84269	13	9°98661	25	10°01339	9°85608	12	53
8	9°84282	13	9°98686	25	10°01314	9°85596	12	52
9	9°84295	13	9°98711	26	10°01289	9°85583	12	51
10	9°84308	13	9°98737	25	10°01263	9°85571	12	50
11	9°84321	13	9°98762	25	10°01238	9°85559	12	49
12	9°84334	13	9°98787	25	10°01213	9°85547	13	48
13	9°84347	13	9°98812	26	10°01188	9°85534	12	47
14	9°84360	13	9°98838	25	10°01162	9°85522	12	46
15	9°84373	12	9°98863	25	10°01137	9°85510	13	45
16	9°84385	13	9°98888	25	10°01112	9°85497	12	44
17	9°84398	13	9°98913	26	10°01087	9°85485	12	43
18	9°84411	13	9°98939	25	10°01061	9°85473	13	42
19	9°84424	13	9°98964	25	10°01036	9°85460	12	41
20	9°84437	13	9°98989	26	10°01011	9°85448	12	40
21	9°84450	13	9°99015	25	10°00985	9°85436	12	39
22	9°84463	13	9°99040	25	10°00960	9°85423	12	38
23	9°84476	13	9°99065	25	10°00935	9°85411	12	37
24	9°84489	13	9°99090	26	10°00910	9°85399	13	36
25	9°84502	13	9°99116	25	10°00884	9°85386	12	35
26	9°84515	13	9°99141	25	10°00859	9°85374	12	34
27	9°84528	12	9°99166	25	10°00834	9°85361	12	33
28	9°84540	13	9°99191	26	10°00809	9°85349	12	32
29	9°84553	13	9°99217	25	10°00783	9°85337	13	31
30	9°84566		9°99242		10°00758	9°85324		30
/	Cosine.		Cotang.		Tang.	Sine.	/	

45°

44°

/	Sine.	D.	Tang.	D. C.	Cotang.	Cosine.	D.	/
30	9·84566		9·99242		10·00758	9·85324		30
31	9·84579	13	9·99267	25	10·00733	9·85312	12	29
32	9·84592	13	9·99293	26	10·00707	9·85299	13	28
33	9·84605	13	9·99318	25	10·00682	9·85287	12	27
34	9·84618	13	9·99343	25	10·00657	9·85274	13	26
35	9·84630	12	9·99368	25	10·00632	9·85262	12	25
36	9·84643	13	9·99394	26	10·00606	9·85250	12	24
		13		25			13	
37	9·84656		9·99419		10·00581	9·85237		23
38	9·84669	13	9·99444	25	10·00556	9·85225	12	22
39	9·84682	13	9·99469	25	10·00531	9·85212	13	21
40	9·84694	12	9·99495	26	10·00505	9·85200	12	20
41	9·84707	13	9·99520	25	10·00480	9·85187	13	19
42	9·84720	13	9·99545	25	10·00455	9·85175	12	18
		13		25			13	
43	9·84733		9·99570		10·00430	9·85162		17
44	9·84745	12	9·99596	26	10·00404	9·85150	12	16
45	9·84758	13	9·99621	25	10·00379	9·85137	13	15
46	9·84771	13	9·99646	25	10·00354	9·85125	12	14
47	9·84784	13	9·99672	26	10·00328	9·85112	13	13
48	9·84796	12	9·99697	25	10·00303	9·85100	12	12
		13		25			13	
49	9·84809		9·99722		10·00278	9·85087		11
50	9·84822	13	9·99747	25	10·00253	9·85074	13	10
51	9·84835	13	9·99773	26	10·00227	9·85062	12	9
52	9·84847	12	9·99798	25	10·00202	9·85049	13	8
53	9·84860	13	9·99823	25	10·00177	9·85037	12	7
54	9·84873	13	9·99848	25	10·00152	9·85024	13	6
		12		26			12	
55	9·84885		9·99874		10·00126	9·85012		5
56	9·84898	13	9·99899	25	10·00101	9·84999	13	4
57	9·84911	13	9·99924	25	10·00076	9·84986	13	3
58	9·84923	12	9·99949	25	10·00051	9·84974	12	2
59	9·84936	13	9·99975	26	10·00025	9·84961	13	1
60	9·84949	13	10·00000	25	10·00000	9·84949	12	0
/	Cosine.		Cotang.		Tang.	Sine.		/

45°

SOLUTION OF THE CUBIC EQUATION

$$x^3 \pm px \pm q = 0,$$

BY TRIGONOMETRICAL TABLES.

Case I.

$$x^3 + px + q = 0.$$

$$\tan B = \frac{\frac{1}{3}p\sqrt{\frac{1}{3}p}}{\frac{1}{3}q} = m.$$

$$\tan A = \sqrt[3]{\tan \frac{1}{3}B}.$$

$$(1) x = \mp 2 \cot 2A \sqrt{\frac{1}{3}p}.$$

$$(2) x = (\pm \cot 2A + \operatorname{cosec} 2A \sqrt{-3}) \sqrt{\frac{1}{3}p}.$$

$$(3) x = (\pm \cot 2A - \operatorname{cosec} 2A \sqrt{-3}) \sqrt{\frac{1}{3}p}.$$

Case II.

$$x^3 - px \pm q = 0. \quad (m < 1.)$$

$$\sin B = m.$$

$$\tan A = \sqrt[3]{\tan \frac{1}{3}B}.$$

$$(1) x = \mp 2 \operatorname{cosec} 2A \sqrt{\frac{1}{3}p}.$$

$$(2) x = (\pm \operatorname{cosec} 2A + \cot 2A \sqrt{-3}) \sqrt{\frac{1}{3}p}.$$

$$(3) x = (\pm \operatorname{cosec} 2A - \cot 2A \sqrt{-3}) \sqrt{\frac{1}{3}p}.$$

Case III.

THE IRREDUCIBLE CASE.

$$x^3 - px \pm q = 0. \quad (m > 1.)$$

$$\operatorname{cosec} B = m.$$

$$A = \frac{1}{3}B.$$

$$(1) x = \pm 2 \sin A \sqrt{\frac{1}{3}p}.$$

$$(2) x = \pm 2 \sin (60^\circ - A) \sqrt{\frac{1}{3}p}.$$

$$(3) x = \mp 2 \sin (60^\circ + A) \sqrt{\frac{1}{3}p}.$$

GAUSS'S
SUM AND DIFFERENCE
LOGARITHMS.

Log ($a + b$).

With $(\log a - \log b)$ as argument, enter

Column **A**,

$$\log (a + b) = \log a + B.$$

Log ($a - b$).

With $(\log a - \log b)$ as argument, enter

Column **B**

or

Column **C**,

$$\log (a - b) = \log a - C,$$

or

$$\log (a - b) = \log a - D.$$

0.000

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.000	0.30103		0.80103		0.030	0.28629		0.31629	
0.001	0.30053	50	0.30153	50	0.031	0.28581	48	0.31681	52
0.002	0.30003	50	0.30203	50	0.032	0.28532	49	0.31732	51
0.003	0.29953	50	0.30253	50	0.033	0.28484	48	0.31784	52
0.004	0.29903	50	0.30303	50	0.034	0.28436	48	0.31836	52
		49		51			48		52
0.005	0.29854		0.30354		0.035	0.28388		0.31888	
0.006	0.29804	50	0.30404	50	0.036	0.28340	48	0.31940	52
0.007	0.29754	50	0.30454	50	0.037	0.28292	48	0.31992	52
0.008	0.29705	49	0.30505	51	0.038	0.28245	47	0.32045	53
0.009	0.29655	50	0.30555	50	0.039	0.28197	48	0.32097	52
		49		51			48		52
0.010	0.29606		0.30606		0.040	0.28149		0.32149	
0.011	0.29556	50	0.30656	50	0.041	0.28101	48	0.32201	52
0.012	0.29507	49	0.30707	51	0.042	0.28054	47	0.32254	53
0.013	0.29458	49	0.30758	51	0.043	0.28006	48	0.32306	52
0.014	0.29409	49	0.30809	51	0.044	0.27959	47	0.32359	53
		50		50			48		52
0.015	0.29359		0.30859		0.045	0.27911		0.32411	
0.016	0.29310	49	0.30910	51	0.046	0.27864	47	0.32464	53
0.017	0.29261	49	0.30961	51	0.047	0.27817	47	0.32517	53
0.018	0.29212	49	0.31012	51	0.048	0.27769	48	0.32569	52
0.019	0.29163	49	0.31063	51	0.049	0.27722	47	0.32622	53
		48		52			47		53
0.020	0.29115		0.31115		0.050	0.27675		0.32675	
0.021	0.29066	49	0.31166	51	0.051	0.27628	47	0.32728	53
0.022	0.29017	49	0.31217	51	0.052	0.27581	47	0.32781	53
0.023	0.28968	49	0.31268	51	0.053	0.27534	47	0.32834	53
0.024	0.28920	48	0.31320	52	0.054	0.27487	47	0.32887	53
		49		51			47		53
0.025	0.28871		0.31371		0.055	0.27440		0.32940	
0.026	0.28822	49	0.31422	51	0.056	0.27393	47	0.32993	53
0.027	0.28774	48	0.31474	52	0.057	0.27346	47	0.33046	53
0.028	0.28726	48	0.31526	52	0.058	0.27300	46	0.33100	54
0.029	0.28677	49	0.31577	51	0.059	0.27253	47	0.33153	53
		48		52			46		54
0.030	0.28629		0.31629		0.060	0.27207		0.33207	

0.060

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.060	0.27207		0.33207		0.090	0.25836		0.34836	
0.061	0.27160	47	0.33260	53	0.091	0.25791	45	0.34891	55
0.062	0.27114	46	0.33314	54	0.092	0.25746	45	0.34946	55
0.063	0.27067	47	0.33367	53	0.093	0.25701	45	0.35001	55
0.064	0.27021	46	0.33421	54	0.094	0.25657	44	0.35057	56
		47		53			45		55
0.065	0.26974		0.33474		0.095	0.25612		0.35112	
0.066	0.26928	46	0.33528	54	0.096	0.25568	44	0.35168	56
0.067	0.26882	46	0.33582	54	0.097	0.25523	45	0.35223	55
0.068	0.26836	46	0.33636	54	0.098	0.25479	44	0.35279	56
0.069	0.26790	46	0.33690	54	0.099	0.25434	45	0.35334	55
		46		54			44		56
0.070	0.26744		0.33744		0.100	0.25390		0.35390	
0.071	0.26698	46	0.33798	54	0.101	0.25346	44	0.35446	56
0.072	0.26652	46	0.33852	54	0.102	0.25302	44	0.35502	56
0.073	0.26606	46	0.33906	54	0.103	0.25258	44	0.35558	56
0.074	0.26560	46	0.33960	54	0.104	0.25214	44	0.35614	56
		45		55			44		56
0.075	0.26515		0.34015		0.105	0.25170		0.35670	
0.076	0.26469	46	0.34069	54	0.106	0.25126	44	0.35726	56
0.077	0.26423	46	0.34123	54	0.107	0.25082	44	0.35782	56
0.078	0.26378	45	0.34178	55	0.108	0.25038	44	0.35838	56
0.079	0.26332	46	0.34232	54	0.109	0.24994	44	0.35894	56
		45		55			44		56
0.080	0.26287		0.34287		0.110	0.24950		0.35950	
0.081	0.26242	45	0.34342	55	0.111	0.24907	43	0.36007	57
0.082	0.26196	46	0.34396	54	0.112	0.24863	44	0.36063	56
0.083	0.26151	45	0.34451	55	0.113	0.24819	44	0.36119	56
0.084	0.26106	45	0.34506	55	0.114	0.24776	43	0.36176	57
		45		55			43		57
0.085	0.26061		0.34561		0.115	0.24733		0.36233	
0.086	0.26016	45	0.34616	55	0.116	0.24689	44	0.36289	56
0.087	0.25970	46	0.34670	54	0.117	0.24646	43	0.36346	57
0.088	0.25926	44	0.34726	56	0.118	0.24603	43	0.36403	57
0.089	0.25881	45	0.34781	55	0.119	0.24559	44	0.36459	56
		45		55			43		57
0.090	0.25836		0.34836		0.120	0.24516		0.36516	

0120

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0·120	0·24516		0·36516		0·150	0·23247		0·38247	
0·121	0·24473	43	0·36573	57	0·151	0·23206	41	0·38306	59
0·122	0·24430	43	0·36630	57	0·152	0·23165	41	0·38365	59
0·123	0·24387	43	0·36687	57	0·153	0·23123	42	0·38423	58
0·124	0·24344	43	0·36744	57	0·154	0·23082	41	0·38482	59
		43		57			41		59
0·125	0·24301		0·36801		0·155	0·23041		0·38541	
0·126	0·24258	43	0·36858	57	0·156	0·23000	41	0·38600	59
0·127	0·24216	42	0·36916	58	0·157	0·22959	41	0·38659	59
0·128	0·24173	43	0·36973	57	0·158	0·22918	41	0·38718	59
0·129	0·24130	43	0·37030	57	0·159	0·22877	41	0·38777	59
		42		58			41		59
0·130	0·24088		0·37088		0·160	0·22836		0·38836	
0·131	0·24045	43	0·37145	57	0·161	0·22795	41	0·38895	59
0·132	0·24003	42	0·37203	58	0·162	0·22754	41	0·38954	59
0·133	0·23960	43	0·37260	57	0·163	0·22713	41	0·39013	59
0·134	0·23918	42	0·37318	58	0·164	0·22673	40	0·39073	60
		43		57			41		59
0·135	0·23875		0·37375		0·165	0·22632		0·39132	
0·136	0·23833	42	0·37433	58	0·166	0·22591	41	0·39191	59
0·137	0·23791	42	0·37491	58	0·167	0·22551	40	0·39251	60
0·138	0·23749	42	0·37549	58	0·168	0·22510	41	0·39310	59
0·139	0·23707	42	0·37607	58	0·169	0·22470	40	0·39370	60
		42		58			40		60
0·140	0·23665		0·37665		0·170	0·22430		0·39430	
0·141	0·23623	42	0·37723	58	0·171	0·22389	41	0·39489	59
0·142	0·23581	42	0·37781	58	0·172	0·22349	40	0·39549	60
0·143	0·23539	42	0·37839	58	0·173	0·22309	40	0·39609	60
0·144	0·23497	42	0·37897	58	0·174	0·22269	40	0·39669	60
		42		58			40		60
0·145	0·23455		0·37955		0·175	0·22229		0·39729	
0·146	0·23414	41	0·38014	59	0·176	0·22189	40	0·39789	60
0·147	0·23372	42	0·38072	58	0·177	0·22149	40	0·39849	60
0·148	0·23330	42	0·38130	58	0·178	0·22109	40	0·39909	60
0·149	0·23289	41	0·38189	59	0·179	0·22069	40	0·39969	60
		42		58			40		60
0·150	0·23247		0·38247		0·180	0·22029		0·40029	

0.180

A	B	Dif.	C	Dif.	A	B	Dif.	C	Dif.
0.180	0.22029		0.40029		0.210	0.20860		0.41860	
0.181	0.21989	40	0.40089	60	0.211	0.20822	38	0.41922	62
0.182	0.21949	40	0.40149	60	0.212	0.20784	38	0.41984	62
0.183	0.21910	39	0.40210	61	0.213	0.20746	38	0.42046	62
0.184	0.21870	40	0.40270	60	0.214	0.20708	38	0.42108	62
		39		61			38		
0.185	0.21831		0.40331		0.215	0.20670		0.42170	
0.186	0.21791	40	0.40391	60	0.216	0.20632	38	0.42232	62
0.187	0.21752	39	0.40452	61	0.217	0.20594	38	0.42294	62
0.188	0.21712	40	0.40512	60	0.218	0.20557	37	0.42357	63
0.189	0.21673	39	0.40573	61	0.219	0.20519	38	0.42419	62
		39		61			38		
0.190	0.21634		0.40634		0.220	0.20481		0.42481	
0.191	0.21595	39	0.40695	61	0.221	0.20444	37	0.42544	63
0.192	0.21556	39	0.40756	61	0.222	0.20406	38	0.42606	62
0.193	0.21516	40	0.40816	60	0.223	0.20369	37	0.42669	63
0.194	0.21477	39	0.40877	61	0.224	0.20331	33	0.42731	62
		39		61			37		63
0.195	0.21438		0.40938		0.225	0.20294		0.42794	
0.196	0.21399	39	0.40999	61	0.226	0.20257	37	0.42857	63
0.197	0.21361	38	0.41061	62	0.227	0.20220	37	0.42920	63
0.198	0.21322	39	0.41122	61	0.228	0.20182	38	0.42982	62
0.199	0.21283	39	0.41183	61	0.229	0.20145	37	0.43045	63
		39		61			37		
0.200	0.21244		0.41244		0.230	0.20108		0.43108	
0.201	0.21206	38	0.41306	62	0.231	0.20071	37	0.43171	63
0.202	0.21167	39	0.41367	61	0.232	0.20034	37	0.43234	63
0.203	0.21128	39	0.41428	61	0.233	0.19997	37	0.43297	63
0.204	0.21090	38	0.41490	62	0.234	0.19960	37	0.43360	63
		38		62			37		
0.205	0.21052		0.41552		0.235	0.19923		0.43423	
0.206	0.21013	39	0.41613	61	0.236	0.19887	36	0.43487	64
0.207	0.20975	38	0.41675	62	0.237	0.19850	37	0.43550	63
0.208	0.20937	38	0.41737	62	0.238	0.19813	37	0.43613	63
0.209	0.20898	39	0.41798	61	0.239	0.19777	36	0.43677	64
		38		62			37		63
0.210	0.20860		0.41860		0.240	0.19740		0.43740	

0.240

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.240	0.19740		0.43740		0.270	0.18668		0.45668	
0.241	0.19704	36	0.43804	64	0.271	0.18633	35	0.45733	65
0.242	0.19667	37	0.43867	63	0.272	0.18599	34	0.45799	66
0.243	0.19631	36	0.43931	64	0.273	0.18564	35	0.45864	65
0.244	0.19595	36	0.43995	64	0.274	0.18529	35	0.45929	65
		37		63			35		
0.245	0.19558	36	0.44058	64	0.275	0.18494	34	0.45994	66
0.246	0.19522	36	0.44122	64	0.276	0.18460	35	0.46060	65
0.247	0.19486	36	0.44186	64	0.277	0.18425	35	0.46125	65
0.248	0.19450	36	0.44250	64	0.278	0.18390	35	0.46190	66
0.249	0.19414	36	0.44314	64	0.279	0.18356	34	0.46256	66
		36		64			34		
0.250	0.19378		0.44378		0.280	0.18322		0.46322	
0.251	0.19342	36	0.44442	64	0.281	0.18287	35	0.46387	65
0.252	0.19306	36	0.44506	64	0.282	0.18253	34	0.46453	66
0.253	0.19270	36	0.44570	64	0.283	0.18218	35	0.46518	65
0.254	0.19234	36	0.44634	64	0.284	0.18184	34	0.46584	66
		36		64			34		
0.255	0.19198		0.44698		0.285	0.18150		0.46650	
0.256	0.19163	35	0.44763	65	0.286	0.18116	34	0.46716	66
0.257	0.19127	36	0.44827	64	0.287	0.18082	34	0.46782	66
0.258	0.19091	36	0.44891	64	0.288	0.18048	34	0.46848	66
0.259	0.19056	35	0.44956	65	0.289	0.18014	34	0.46914	66
		36		64			34		
0.260	0.19020		0.45020		0.290	0.17980		0.46980	
0.261	0.18985	35	0.45085	65	0.291	0.17946	34	0.47046	66
0.262	0.18949	36	0.45149	64	0.292	0.17912	34	0.47112	66
0.263	0.18914	35	0.45214	65	0.293	0.17878	34	0.47178	66
0.264	0.18879	35	0.45279	65	0.294	0.17845	33	0.47245	67
		35		65			34		66
0.265	0.18844		0.45344		0.295	0.17811		0.47311	
0.266	0.18808	36	0.45408	64	0.296	0.17777	34	0.47377	66
0.267	0.18773	35	0.45473	65	0.297	0.17744	33	0.47444	67
0.268	0.18738	35	0.45538	65	0.298	0.17710	34	0.47510	66
0.269	0.18703	35	0.45603	65	0.299	0.17677	33	0.47577	67
		35		65			34		66
0.270	0.18668		0.45668		0.300	0.17643		0.47643	

0.300

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.300	0.17643		0.47643		0.330	0.16665		0.49665	
0.301	0.17610	33	0.47710	67	0.331	0.16633	32	0.49733	68
0.302	0.17577	33	0.47777	67	0.332	0.16601	32	0.49801	68
0.303	0.17544	33	0.47844	67	0.333	0.16569	32	0.49869	68
0.304	0.17510	34	0.47910	66	0.334	0.16538	31	0.49938	69
		33		67			32		68
0.305	0.17477		0.47977		0.335	0.16506		0.50006	
0.306	0.17444	33	0.48044	67	0.336	0.16474	32	0.50074	68
0.307	0.17411	33	0.48111	67	0.337	0.16443	31	0.50143	69
0.308	0.17378	33	0.48178	67	0.338	0.16411	32	0.50211	68
0.309	0.17345	33	0.48245	67	0.339	0.16380	31	0.50280	69
		33		67			31		69
0.310	0.17312		0.48312		0.340	0.16349		0.50349	
0.311	0.17279	33	0.48379	67	0.341	0.16317	32	0.50417	68
0.312	0.17247	32	0.48447	68	0.342	0.16286	31	0.50486	69
0.313	0.17214	33	0.48514	67	0.343	0.16255	31	0.50555	69
0.314	0.17181	33	0.48581	67	0.344	0.16224	32	0.50624	68
		33		67			32		68
0.315	0.17148		0.48648		0.345	0.16192		0.50692	
0.316	0.17116	32	0.48716	68	0.346	0.16161	31	0.50761	69
0.317	0.17083	33	0.48783	67	0.347	0.16130	31	0.50830	69
0.318	0.17051	32	0.48851	68	0.348	0.16099	31	0.50899	69
0.319	0.17018	33	0.48918	67	0.349	0.16068	31	0.50968	69
		32		68			31		69
0.320	0.16986		0.48986		0.350	0.16037		0.51037	
0.321	0.16954	32	0.49054	68	0.351	0.16007	30	0.51107	70
0.322	0.16921	33	0.49121	67	0.352	0.15976	31	0.51176	69
0.323	0.16889	32	0.49189	68	0.353	0.15945	31	0.51245	69
0.324	0.16857	32	0.49257	68	0.354	0.15914	31	0.51314	69
		32		68			30		70
0.325	0.16825		0.49325		0.355	0.15884		0.51384	
0.326	0.16793	32	0.49393	68	0.356	0.15853	31	0.51453	69
0.327	0.16761	32	0.49461	68	0.357	0.15822	31	0.51522	69
0.328	0.16729	32	0.49529	68	0.358	0.15792	30	0.51592	70
0.329	0.16697	32	0.49597	68	0.359	0.15761	31	0.51661	69
		32		68			30		70
0.330	0.16665		0.49665		0.360	0.15731		0.51731	

0.360

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.360	0.15731		0.51731		0.390	0.14841		0.53841	
0.361	0.15701	30	0.51801	70	0.391	0.14812	29	0.53912	71
0.362	0.15670	31	0.51870	69	0.392	0.14783	29	0.53983	71
0.363	0.15640	30	0.51940	70	0.393	0.14755	28	0.54055	72
0.364	0.15610	30	0.52010	70	0.394	0.14726	29	0.54126	71
		30		70			29		71
0.365	0.15580		0.52080		0.395	0.14697		0.54197	
0.366	0.15550	30	0.52150	70	0.396	0.14668	29	0.54268	71
0.367	0.15520	30	0.52220	70	0.397	0.14640	28	0.54340	72
0.368	0.15489	31	0.52289	69	0.398	0.14611	29	0.54411	71
0.369	0.15460	29	0.52360	71	0.399	0.14583	28	0.54483	72
		30		70			29		71
0.370	0.15430		0.52430		0.400	0.14554		0.54554	
0.371	0.15400	30	0.52500	70	0.401	0.14526	28	0.54626	72
0.372	0.15370	30	0.52570	70	0.402	0.14497	29	0.54697	71
0.373	0.15340	30	0.52640	70	0.403	0.14469	28	0.54769	72
0.374	0.15310	30	0.52710	70	0.404	0.14441	28	0.54841	72
		29		71			29		71
0.375	0.15281		0.52781		0.405	0.14412		0.54912	
0.376	0.15251	30	0.52851	70	0.406	0.14384	28	0.54984	72
0.377	0.15221	30	0.52921	70	0.407	0.14356	28	0.55056	72
0.378	0.15192	29	0.52992	71	0.408	0.14328	28	0.55128	72
0.379	0.15162	30	0.53062	70	0.409	0.14300	28	0.55200	72
		29		71			28		72
0.380	0.15133		0.53133		0.410	0.14272		0.55272	
0.381	0.15104	29	0.53204	71	0.411	0.14244	28	0.55344	72
0.382	0.15074	30	0.53274	70	0.412	0.14216	28	0.55416	72
0.383	0.15045	29	0.53345	71	0.413	0.14188	28	0.55488	72
0.384	0.15016	29	0.53416	71	0.414	0.14160	28	0.55560	72
		30		70			28		72
0.385	0.14986		0.53486		0.415	0.14132		0.55632	
0.386	0.14957	29	0.53557	71	0.416	0.14104	28	0.55704	72
0.387	0.14928	29	0.53628	71	0.417	0.14077	27	0.55777	73
0.388	0.14899	29	0.53699	71	0.418	0.14049	28	0.55849	72
0.389	0.14870	29	0.53770	71	0.419	0.14021	27	0.55921	73
		29		71			27		73
0.390	0.14841		0.53841		0.420	0.13994		0.55994	

0.420

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.420	0.13994		0.55994		0.450	0.13188		0.58188	
0.421	0.13966	28	0.56066	72	0.451	0.13162	26	0.58262	74
0.422	0.13939	27	0.56139	73	0.452	0.13136	26	0.58336	74
0.423	0.13911	28	0.56211	72	0.453	0.13110	26	0.58410	74
0.424	0.13884	27	0.56284	73	0.454	0.13084	26	0.58484	74
		27		73			26		74
0.425	0.13857	28	0.56357	72	0.455	0.13058	26	0.58558	74
0.426	0.13829	27	0.56429	73	0.456	0.13032	26	0.58632	74
0.427	0.13802	27	0.56502	73	0.457	0.13006	26	0.58706	74
0.428	0.13775	27	0.56575	73	0.458	0.12980	26	0.58780	74
0.429	0.13748	27	0.56648	73	0.459	0.12954	26	0.58854	74
		27		73			26		74
0.430	0.13721		0.56721		0.460	0.12928		0.58928	
0.431	0.13694	27	0.56794	73	0.461	0.12903	25	0.59003	75
0.432	0.13667	27	0.56867	73	0.462	0.12877	26	0.59077	74
0.433	0.13640	27	0.56940	73	0.463	0.12851	26	0.59151	74
0.434	0.13613	27	0.57013	73	0.464	0.12826	25	0.59226	75
		27		73			26		74
0.435	0.13586	27	0.57086	73	0.465	0.12800	25	0.59300	75
0.436	0.13559	27	0.57159	73	0.466	0.12775	26	0.59375	74
0.437	0.13532	27	0.57232	73	0.467	0.12749	25	0.59449	75
0.438	0.13505	27	0.57305	73	0.468	0.12724	26	0.59524	74
0.439	0.13479	26	0.57379	74	0.469	0.12698	26	0.59598	74
		27		73			25		75
0.440	0.13452		0.57452		0.470	0.12673		0.59673	
0.441	0.13425	27	0.57525	73	0.471	0.12648	25	0.59748	75
0.442	0.13399	26	0.57599	74	0.472	0.12622	26	0.59822	74
0.443	0.13372	27	0.57672	73	0.473	0.12597	25	0.59897	75
0.444	0.13346	26	0.57746	74	0.474	0.12572	25	0.59972	75
		27		73			25		75
0.445	0.13319	26	0.57819	74	0.475	0.12547	25	0.60047	75
0.446	0.13293	26	0.57893	74	0.476	0.12522	25	0.60122	75
0.447	0.13267	26	0.57967	74	0.477	0.12497	25	0.60197	75
0.448	0.13240	27	0.58040	73	0.478	0.12472	25	0.60272	75
0.449	0.13214	26	0.58114	74	0.479	0.12447	25	0.60347	75
		26		74			25		75
0.450	0.13188		0.58188		0.480	0.12422		0.60422	

0.480

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.480	0.12422		0.60422		0.510	0.11695		0.62695	
0.481	0.12397	25	0.60497	75	0.511	0.11671	24	0.62771	76
0.482	0.12372	25	0.60572	75	0.512	0.11648	23	0.62848	77
0.483	0.12348	24	0.60648	76	0.513	0.11624	24	0.62924	76
0.484	0.12323	25	0.60723	75	0.514	0.11601	23	0.63001	77
		25		75			24		76
0.485	0.12298		0.60798		0.515	0.11577		0.63077	
0.486	0.12274	24	0.60874	76	0.516	0.11554	23	0.63154	77
0.487	0.12249	25	0.60949	75	0.517	0.11531	23	0.63231	77
0.488	0.12224	25	0.61024	75	0.518	0.11507	24	0.63307	76
0.489	0.12200	24	0.61100	76	0.519	0.11484	23	0.63384	77
		25		75			23		77
0.490	0.12175		0.61175		0.520	0.11461		0.63461	
0.491	0.12151	24	0.61251	76	0.521	0.11438	23	0.63538	77
0.492	0.12127	24	0.61327	76	0.522	0.11415	23	0.63615	77
0.493	0.12102	25	0.61402	75	0.523	0.11392	23	0.63692	77
0.494	0.12078	24	0.61478	76	0.524	0.11368	24	0.63768	76
		24		76			23		77
0.495	0.12054		0.61554		0.525	0.11345		0.63845	
0.496	0.12030	24	0.61630	76	0.526	0.11323	22	0.63923	78
0.497	0.12005	25	0.61705	75	0.527	0.11300	23	0.64000	77
0.498	0.11981	24	0.61781	76	0.528	0.11277	23	0.64077	77
0.499	0.11957	24	0.61857	76	0.529	0.11254	23	0.64154	77
		24		76			23		77
0.500	0.11933		0.61933		0.530	0.11231		0.64231	
0.501	0.11909	24	0.62009	76	0.531	0.11208	23	0.64308	77
0.502	0.11885	24	0.62085	76	0.532	0.11186	22	0.64386	78
0.503	0.11861	24	0.62161	76	0.533	0.11163	23	0.64463	77
0.504	0.11837	24	0.62237	76	0.534	0.11140	23	0.64540	77
		23		77			22		78
0.505	0.11814		0.62314		0.535	0.11118		0.64618	
0.506	0.11790	24	0.62390	76	0.536	0.11095	23	0.64695	77
0.507	0.11766	24	0.62466	76	0.537	0.11073	22	0.64773	78
0.508	0.11742	24	0.62542	76	0.538	0.11050	23	0.64850	77
0.509	0.11719	23	0.62619	77	0.539	0.11028	22	0.64928	78
		24		76			23		77
0.510	0.11695		0.62695		0.540	0.11005		0.65005	

0.540

A	B	Dif.	C	Dif.	A	B	Dif.	C	Dif.
0.540	0.11005		0.65005		0.570	0.10351		0.67851	
0.541	0.10983	22	0.65083	78	0.571	0.10330	21	0.67430	79
0.542	0.10960	23	0.65160	77	0.572	0.10309	21	0.67509	79
0.543	0.10938	22	0.65238	78	0.573	0.10288	21	0.67588	79
0.544	0.10916	22	0.65316	78	0.574	0.10267	21	0.67667	79
0.545	0.10894	22	0.65394	78	0.575	0.10246	21	0.67746	79
0.546	0.10872	23	0.65472	77	0.576	0.10225	21	0.67825	79
0.547	0.10849	22	0.65549	78	0.577	0.10204	21	0.67904	79
0.548	0.10827	22	0.65627	78	0.578	0.10183	21	0.67983	79
0.549	0.10805	22	0.65705	78	0.579	0.10162	21	0.68062	79
0.550	0.10783		0.65783		0.580	0.10141		0.68141	
0.551	0.10761	22	0.65861	78	0.581	0.10120	21	0.68220	79
0.552	0.10739	22	0.65939	78	0.582	0.10100	20	0.68300	80
0.553	0.10718	21	0.66018	79	0.583	0.10079	21	0.68379	79
0.554	0.10696	22	0.66096	78	0.584	0.10058	20	0.68458	80
0.555	0.10674	22	0.66174	78	0.585	0.10038	21	0.68538	79
0.556	0.10652	22	0.66252	78	0.586	0.10017	21	0.68617	79
0.557	0.10630	21	0.66330	79	0.587	0.09996	20	0.68696	80
0.558	0.10609	22	0.66409	78	0.588	0.09976	21	0.68776	79
0.559	0.10587	22	0.66487	78	0.589	0.09955	20	0.68855	80
0.560	0.10565		0.66565		0.590	0.09935		0.68935	
0.561	0.10544	21	0.66644	79	0.591	0.09914	21	0.69014	79
0.562	0.10522	22	0.66722	78	0.592	0.09894	20	0.69094	80
0.563	0.10501	21	0.66801	79	0.593	0.09874	20	0.69174	80
0.564	0.10479	22	0.66879	78	0.594	0.09853	21	0.69253	79
0.565	0.10458	21	0.66958	79	0.595	0.09833	20	0.69333	80
0.566	0.10437	22	0.67037	78	0.596	0.09813	20	0.69413	80
0.567	0.10415	21	0.67115	79	0.597	0.09793	20	0.69493	80
0.568	0.10394	21	0.67194	79	0.598	0.09773	21	0.69573	79
0.569	0.10373	22	0.67273	78	0.599	0.09752	20	0.69652	80
0.570	0.10351		0.67351		0.600	0.09732		0.69732	

0.600

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.600	0.09732		0.69732		0.630	0.09146		0.72146	
0.601	0.09712	20	0.69812	80	0.631	0.09127	19	0.72227	81
0.602	0.09692	20	0.69892	80	0.632	0.09108	19	0.72308	81
0.603	0.09672	20	0.69972	80	0.633	0.09090	18	0.72390	82
0.604	0.09652	20	0.70052	80	0.634	0.09071	19	0.72471	81
0.605	0.09632	20	0.70132	80	0.635	0.09052	19	0.72552	81
0.606	0.09612	19	0.70212	81	0.636	0.09033	19	0.72633	81
0.607	0.09593	20	0.70293	80	0.637	0.09014	18	0.72714	82
0.608	0.09573	20	0.70373	80	0.638	0.08996	19	0.72796	81
0.609	0.09553	20	0.70453	80	0.639	0.08977	19	0.72877	81
0.610	0.09533	19	0.70533	81	0.640	0.08958	18	0.72958	82
0.611	0.09514	20	0.70614	80	0.641	0.08940	19	0.73040	81
0.612	0.09494	20	0.70694	80	0.642	0.08921	19	0.73121	81
0.613	0.09474	19	0.70774	81	0.643	0.08902	18	0.73202	82
0.614	0.09455	20	0.70855	80	0.644	0.08884	19	0.73284	81
0.615	0.09435	19	0.70935	81	0.645	0.08865	18	0.73365	82
0.616	0.09416	20	0.71016	80	0.646	0.08847	18	0.73447	82
0.617	0.09396	19	0.71096	81	0.647	0.08829	19	0.73529	81
0.618	0.09377	20	0.71177	80	0.648	0.08810	18	0.73610	82
0.619	0.09357	19	0.71257	81	0.649	0.08792	18	0.73692	82
0.620	0.09338	19	0.71338	81	0.650	0.08774	19	0.73774	81
0.621	0.09319	20	0.71419	80	0.651	0.08755	18	0.73855	82
0.622	0.09299	19	0.71499	81	0.652	0.08737	18	0.73937	82
0.623	0.09280	19	0.71580	81	0.653	0.08719	18	0.74019	82
0.624	0.09261	19	0.71661	81	0.654	0.08701	18	0.74101	82
0.625	0.09242	19	0.71742	81	0.655	0.08683	19	0.74183	81
0.626	0.09223	19	0.71823	81	0.656	0.08664	18	0.74264	82
0.627	0.09204	20	0.71904	80	0.657	0.08646	18	0.74346	82
0.628	0.09184	19	0.71984	81	0.658	0.08628	18	0.74428	82
0.629	0.09165	19	0.72065	81	0.659	0.08610	18	0.74510	82
0.630	0.09146		0.72146		0.660	0.08592		0.74592	

0.660

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.660	0.08592	18	0.74592	82	0.690	0.08069	17	0.77069	83
0.661	0.08574	17	0.74674	83	0.691	0.08052	17	0.77152	83
0.662	0.08557	18	0.74757	82	0.692	0.08035	17	0.77235	83
0.663	0.08539	18	0.74839	82	0.693	0.08018	17	0.77318	83
0.664	0.08521	18	0.74921	82	0.694	0.08001	16	0.77401	84
0.665	0.08503	18	0.75003	82	0.695	0.07985	17	0.77485	83
0.666	0.08485	17	0.75085	83	0.696	0.07968	17	0.77568	83
0.667	0.08468	18	0.75168	82	0.697	0.07951	17	0.77651	83
0.668	0.08450	18	0.75250	82	0.698	0.07934	16	0.77734	84
0.669	0.08432	17	0.75332	83	0.699	0.07918	17	0.77818	83
0.670	0.08415	18	0.75415	82	0.700	0.07901	17	0.77901	83
0.671	0.08397	18	0.75497	82	0.701	0.07884	16	0.77984	84
0.672	0.08379	17	0.75579	83	0.702	0.07868	17	0.78068	83
0.673	0.08362	18	0.75662	82	0.703	0.07851	16	0.78151	84
0.674	0.08344	17	0.75744	83	0.704	0.07835	17	0.78235	83
0.675	0.08327	18	0.75827	82	0.705	0.07818	16	0.78318	84
0.676	0.08309	17	0.75909	83	0.706	0.07802	17	0.78402	83
0.677	0.08292	17	0.75992	83	0.707	0.07785	16	0.78485	84
0.678	0.08275	18	0.76075	82	0.708	0.07769	16	0.78569	84
0.679	0.08257	17	0.76157	83	0.709	0.07753	17	0.78653	83
0.680	0.08240	17	0.76240	83	0.710	0.07736	16	0.78736	84
0.681	0.08223	17	0.76323	83	0.711	0.07720	16	0.78820	84
0.682	0.08206	18	0.76406	82	0.712	0.07704	17	0.78904	83
0.683	0.08188	17	0.76488	83	0.713	0.07687	16	0.78987	84
0.684	0.08171	17	0.76571	83	0.714	0.07671	16	0.79071	84
0.685	0.08154	17	0.76654	83	0.715	0.07655	16	0.79155	84
0.686	0.08137	17	0.76737	83	0.716	0.07639	16	0.79239	84
0.687	0.08120	17	0.76820	83	0.717	0.07623	16	0.79323	84
0.688	0.08103	17	0.76903	83	0.718	0.07607	16	0.79407	84
0.689	0.08086	17	0.76986	83	0.719	0.07591	16	0.79491	84
0.690	0.08069		0.77069		0.720	0.07575		0.79575	

0.720

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.720	0.07575	16	0.79575	84	0.750	0.07108	15	0.82108	85
0.721	0.07559	16	0.79659	84	0.751	0.07093	15	0.82193	85
0.722	0.07543	16	0.79743	84	0.752	0.07078	15	0.82278	85
0.723	0.07527	16	0.79827	84	0.753	0.07063	15	0.82363	85
0.724	0.07511	16	0.79911	84	0.754	0.07048	15	0.82448	85
0.725	0.07495	16	0.79995	84	0.755	0.07033	15	0.82533	85
0.726	0.07479	16	0.80079	84	0.756	0.07018	15	0.82618	85
0.727	0.07463	15	0.80163	85	0.757	0.07003	15	0.82703	85
0.728	0.07448	16	0.80248	84	0.758	0.06988	15	0.82788	85
0.729	0.07432	16	0.80332	84	0.759	0.06973	14	0.82873	86
0.730	0.07416	16	0.80416	84	0.760	0.06959	15	0.82959	85
0.731	0.07400	15	0.80500	85	0.761	0.06944	15	0.83044	85
0.732	0.07385	16	0.80585	84	0.762	0.06929	15	0.83129	85
0.733	0.07369	15	0.80669	85	0.763	0.06914	14	0.83214	86
0.734	0.07354	16	0.80754	84	0.764	0.06900	15	0.83300	85
0.735	0.07338	16	0.80838	84	0.765	0.06885	15	0.83385	85
0.736	0.07322	15	0.80922	85	0.766	0.06870	14	0.83470	86
0.737	0.07307	16	0.81007	84	0.767	0.06856	15	0.83556	85
0.738	0.07291	15	0.81091	85	0.768	0.06841	14	0.83641	86
0.739	0.07276	15	0.81176	85	0.769	0.06827	15	0.83727	85
0.740	0.07261	16	0.81261	84	0.770	0.06812	14	0.83812	86
0.741	0.07245	15	0.81345	85	0.771	0.06798	15	0.83898	85
0.742	0.07230	15	0.81430	85	0.772	0.06783	14	0.83983	86
0.743	0.07215	16	0.81515	84	0.773	0.06769	15	0.84069	85
0.744	0.07199	15	0.81599	85	0.774	0.06754	14	0.84154	86
0.745	0.07184	15	0.81684	85	0.775	0.06740	15	0.84240	85
0.746	0.07169	15	0.81769	85	0.776	0.06725	14	0.84325	86
0.747	0.07154	16	0.81854	84	0.777	0.06711	14	0.84411	86
0.748	0.07138	15	0.81938	85	0.778	0.06697	14	0.84497	86
0.749	0.07123	15	0.82023	85	0.779	0.06683	15	0.84583	85
0.750	0.07108		0.82108		0.780	0.06668		0.84668	

0.780

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.780	0.06668		0.84668		0.810	0.06254		0.87254	
0.781	0.06654	14	0.84754	86	0.811	0.06240	14	0.87340	86
0.782	0.06640	14	0.84840	86	0.812	0.06227	13	0.87427	87
0.783	0.06626	14	0.84926	86	0.813	0.06214	13	0.87514	87
0.784	0.06612	14	0.85012	85	0.814	0.06200	14	0.87600	86
		15					13		87
0.785	0.06597		0.85097	86	0.815	0.06187		0.87687	
0.786	0.06583	14	0.85183	86	0.816	0.06174	13	0.87774	87
0.787	0.06569	14	0.85269	86	0.817	0.06161	13	0.87861	87
0.788	0.06555	14	0.85355	86	0.818	0.06147	14	0.87947	86
0.789	0.06541	14	0.85441	86	0.819	0.06134	13	0.88034	87
		14					13		87
0.790	0.06527		0.85527		0.820	0.06121		0.88121	
0.791	0.06513	14	0.85613	86	0.821	0.06108	13	0.88208	87
0.792	0.06500	13	0.85700	87	0.822	0.06095	13	0.88295	87
0.793	0.06486	14	0.85786	86	0.823	0.06082	13	0.88382	87
0.794	0.06472	14	0.85872	86	0.824	0.06069	13	0.88469	87
		14					13		
0.795	0.06458		0.85958	86	0.825	0.06056		0.88556	
0.796	0.06444	14	0.86044	86	0.826	0.06043	13	0.88643	87
0.797	0.06430	14	0.86130	86	0.827	0.06030	13	0.88730	87
0.798	0.06417	13	0.86217	87	0.828	0.06017	13	0.88817	87
0.799	0.06403	14	0.86303	86	0.829	0.06004	13	0.88904	87
		14					13		87
0.800	0.06389		0.86389		0.830	0.05991		0.88991	
0.801	0.06376	13	0.86476	87	0.831	0.05978	13	0.89078	87
0.802	0.06362	14	0.86562	86	0.832	0.05965	13	0.89165	87
0.803	0.06348	14	0.86648	86	0.833	0.05952	13	0.89252	87
0.804	0.06335	13	0.86735	87	0.834	0.05939	13	0.89339	87
		14		86			12		88
0.805	0.06321		0.86821		0.835	0.05927		0.89427	
0.806	0.06308	13	0.86908	87	0.836	0.05914	13	0.89514	87
0.807	0.06294	14	0.86994	86	0.837	0.05901	13	0.89601	87
0.808	0.06281	13	0.87081	87	0.838	0.05889	12	0.89689	88
0.809	0.06267	14	0.87167	86	0.839	0.05876	13	0.89776	87
		13		87			13		87
0.810	0.06254		0.87254		0.840	0.05863		0.89863	

0.840

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.840	0.05863		0.89863		0.870	0.05496		0.92496	
0.841	0.05851	12	0.89951	88	0.871	0.05484	12	0.92584	88
0.842	0.05838	13	0.90038	87	0.872	0.05472	12	0.92672	88
0.843	0.05825	13	0.90125	88	0.873	0.05460	12	0.92760	88
0.844	0.05813	12	0.90213	88	0.874	0.05448	12	0.92848	88
		13		87					
0.845	0.05800		0.90300		0.875	0.05436		0.92936	
0.846	0.05788	12	0.90388	88	0.876	0.05425	11	0.93025	89
0.847	0.05775	13	0.90475	87	0.877	0.05413	12	0.93113	88
0.848	0.05763	12	0.90563	88	0.878	0.05401	12	0.93201	89
0.849	0.05751	12	0.90651	88	0.879	0.05390	12	0.93290	88
		13		87					
0.850	0.05738		0.90738		0.880	0.05378		0.93378	
0.851	0.05726	12	0.90826	88	0.881	0.05366	12	0.93466	88
0.852	0.05714	12	0.90914	88	0.882	0.05355	11	0.93555	89
0.853	0.05701	13	0.91001	87	0.883	0.05343	12	0.93643	88
0.854	0.05689	12	0.91089	88	0.884	0.05332	11	0.93732	89
		12		88			12		88
0.855	0.05677		0.91177		0.885	0.05320		0.93820	
0.856	0.05664	13	0.91264	87	0.886	0.05308	12	0.93908	88
0.857	0.05652	12	0.91352	88	0.887	0.05297	11	0.93997	89
0.858	0.05640	12	0.91440	88	0.888	0.05286	11	0.94086	89
0.859	0.05628	12	0.91528	88	0.889	0.05274	12	0.94174	88
		12		88			11		89
0.860	0.05616		0.91616		0.890	0.05263		0.94263	
0.861	0.05604	12	0.91704	88	0.891	0.05251	12	0.94351	88
0.862	0.05591	13	0.91791	87	0.892	0.05240	11	0.94440	89
0.863	0.05579	12	0.91879	88	0.893	0.05229	11	0.94529	89
0.864	0.05567	12	0.91967	88	0.894	0.05217	12	0.94617	88
		12		88			11		89
0.865	0.05555		0.92055		0.895	0.05206		0.94706	
0.866	0.05543	12	0.92143	88	0.896	0.05195	11	0.94795	89
0.867	0.05531	12	0.92231	88	0.897	0.05183	12	0.94883	88
0.868	0.05519	12	0.92319	88	0.898	0.05172	11	0.94972	89
0.869	0.05508	11	0.92408	89	0.899	0.05161	11	0.95061	89
		12		88					
0.870	0.05496		0.92496		0.900	0.05150		0.95150	

0.900

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.900	0.05150	II	0.95150	89	0.930	0.04824	IO	0.97824	90
0.901	0.05139	II	0.95239	88	0.931	0.04814	II	0.97914	89
0.902	0.05127	II	0.95327	89	0.932	0.04803	IO	0.98003	90
0.903	0.05116	II	0.95416	89	0.933	0.04793	II	0.98093	89
0.904	0.05105	II	0.95505	89	0.934	0.04782	IO	0.98182	90
0.905	0.05094	II	0.95594	89	0.935	0.04772	IO	0.98272	90
0.906	0.05083	II	0.95683	89	0.936	0.04762	II	0.98362	89
0.907	0.05072	II	0.95772	89	0.937	0.04751	IO	0.98451	90
0.908	0.05061	II	0.95861	89	0.938	0.04741	IO	0.98541	90
0.909	0.05050	II	0.95950	89	0.939	0.04731	II	0.98631	89
0.910	0.05039	II	0.96039	89	0.940	0.04720	IO	0.98720	90
0.911	0.05028	II	0.96128	89	0.941	0.04710	IO	0.98810	90
0.912	0.05017	II	0.96217	89	0.942	0.04700	II	0.98900	89
0.913	0.05006	II	0.96306	89	0.943	0.04689	IO	0.98989	90
0.914	0.04995	IO	0.96395	90	0.944	0.04679	IO	0.99079	90
0.915	0.04985	II	0.96485	89	0.945	0.04669	IO	0.99169	90
0.916	0.04974	II	0.96574	89	0.946	0.04659	IO	0.99259	90
0.917	0.04963	II	0.96663	89	0.947	0.04649	IO	0.99349	90
0.918	0.04952	II	0.96752	89	0.948	0.04639	II	0.99439	89
0.919	0.04941	IO	0.96841	90	0.949	0.04628	IO	0.99528	90
0.920	0.04931	II	0.96931	89	0.950	0.04618	IO	0.99618	90
0.921	0.04920	II	0.97020	89	0.951	0.04608	IO	0.99708	90
0.922	0.04909	II	0.97109	89	0.952	0.04598	IO	0.99798	90
0.923	0.04898	IO	0.97198	90	0.953	0.04588	IO	0.99888	90
0.924	0.04888	II	0.97288	89	0.954	0.04578	IO	0.99978	90
0.925	0.04877	IO	0.97377	90	0.955	0.04568	IO	1.00068	90
0.926	0.04867	II	0.97467	89	0.956	0.04558	IO	1.00158	90
0.927	0.04856	II	0.97556	89	0.957	0.04548	IO	1.00248	90
0.928	0.04845	IO	0.97645	90	0.958	0.04538	IO	1.00338	90
0.929	0.04835	II	0.97735	89	0.959	0.04528	9	1.00428	91
0.930	0.04824		0.97824		0.960	0.04519		1.00519	

0.960

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.960	0.04519		1.00519		0.990	0.04231		1.03231	
0.961	0.04509	10	1.00609	90	0.991	0.04222	9	1.03322	91
0.962	0.04499	10	1.00699	90	0.992	0.04213	9	1.03413	91
0.963	0.04489	10	1.00789	90	0.993	0.04203	10	1.03503	90
0.964	0.04479	10	1.00879	90	0.994	0.04194	9	1.03594	91
0.965	0.04469		1.00969		0.995	0.04185		1.03685	
0.966	0.04460	9	1.01060	91	0.996	0.04176	9	1.03776	91
0.967	0.04450	10	1.01150	90	0.997	0.04167	9	1.03867	91
0.968	0.04440	10	1.01240	90	0.998	0.04157	10	1.03957	90
0.969	0.04430	10	1.01330	90	0.999	0.04148	9	1.04048	91
		9		91			9		91
0.970	0.04421		1.01421		1.000	0.04139		1.04139	
0.971	0.04411	10	1.01511	90	1.001	0.04130	9	1.04230	91
0.972	0.04401	10	1.01601	90	1.002	0.04121	9	1.04321	91
0.973	0.04392	9	1.01692	91	1.003	0.04112	9	1.04412	91
0.974	0.04382	10	1.01782	90	1.004	0.04103	9	1.04503	91
		9		91			9		91
0.975	0.04373		1.01873		1.005	0.04094		1.04594	
0.976	0.04363	10	1.01963	90	1.006	0.04085	9	1.04685	91
0.977	0.04353	10	1.02053	90	1.007	0.04076	9	1.04776	91
0.978	0.04344	9	1.02144	91	1.008	0.04067	9	1.04867	91
0.979	0.04334	10	1.02234	90	1.009	0.04058	9	1.04958	91
		9		91			9		91
0.980	0.04325		1.02325		1.010	0.04049		1.05049	
0.981	0.04315	10	1.02415	90	1.011	0.04040	9	1.05140	91
0.982	0.04306	9	1.02506	91	1.012	0.04032	8	1.05232	92
0.983	0.04297	9	1.02597	91	1.013	0.04023	9	1.05323	91
0.984	0.04287	10	1.02687	90	1.014	0.04014	9	1.05414	91
		9		91			9		91
0.985	0.04278		1.02778		1.015	0.04005		1.05505	
0.986	0.04268	10	1.02868	90	1.016	0.03996	9	1.05596	91
0.987	0.04259	9	1.02959	91	1.017	0.03987	9	1.05687	91
0.988	0.04250	9	1.03050	91	1.018	0.03979	8	1.05779	92
0.989	0.04240	10	1.03140	90	1.019	0.03970	9	1.05870	91
		9		91			9		91
0.990	0.04231		1.03231		1.020	0.03961		1.05961	

1.020

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.020	0.03961	8	1.05961	92	1.050	0.03708	8	1.08708	92
1.021	0.03953	9	1.06053	91	1.051	0.03700	9	1.08800	91
1.022	0.03944	9	1.06144	91	1.052	0.03691	8	1.08891	92
1.023	0.03935	9	1.06235	91	1.053	0.03683	8	1.08983	92
1.024	0.03926	8	1.06326	92	1.054	0.03675	8	1.09075	92
1.025	0.03918	9	1.06418	91	1.055	0.03667	8	1.09167	92
1.026	0.03909	8	1.06509	92	1.056	0.03659	8	1.09259	92
1.027	0.03901	9	1.06601	91	1.057	0.03651	8	1.09351	92
1.028	0.03892	9	1.06692	91	1.058	0.03643	8	1.09443	92
1.029	0.03883	8	1.06783	92	1.059	0.03635	8	1.09535	92
1.030	0.03875	9	1.06875	91	1.060	0.03627	8	1.09627	92
1.031	0.03866	8	1.06966	92	1.061	0.03619	8	1.09719	92
1.032	0.03858	9	1.07058	91	1.062	0.03611	8	1.09811	92
1.033	0.03849	8	1.07149	92	1.063	0.03603	8	1.09903	92
1.034	0.03841	9	1.07241	91	1.064	0.03595	8	1.09995	92
1.035	0.03832	8	1.07332	92	1.065	0.03587	8	1.10087	92
1.036	0.03824	8	1.07424	92	1.066	0.03579	8	1.10179	92
1.037	0.03816	9	1.07516	91	1.067	0.03571	8	1.10271	92
1.038	0.03807	8	1.07607	92	1.068	0.03563	8	1.10363	92
1.039	0.03799	9	1.07699	91	1.069	0.03555	7	1.10455	93
1.040	0.03790	8	1.07790	92	1.070	0.03543	8	1.10548	92
1.041	0.03782	8	1.07882	92	1.071	0.03540	8	1.10640	92
1.042	0.03774	9	1.07974	91	1.072	0.03532	8	1.10732	92
1.043	0.03765	8	1.08065	92	1.073	0.03524	8	1.10824	92
1.044	0.03757	8	1.08157	92	1.074	0.03516	7	1.10916	93
1.045	0.03749	8	1.08249	92	1.075	0.03509	8	1.11009	92
1.046	0.03741	9	1.08341	91	1.076	0.03501	8	1.11101	92
1.047	0.03732	8	1.08432	92	1.077	0.03493	8	1.11193	92
1.048	0.03724	8	1.08524	92	1.078	0.03485	7	1.11285	93
1.049	0.03716	8	1.08616	92	1.079	0.03478	8	1.11378	92
1.050	0.03708		1.08708		1.080	0.03470		1.11470	

1.080

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.080	0.03470	8	1.11470	92	1.110	0.03247	7	1.14247	93
1.081	0.03462	7	1.11562	93	1.111	0.03240	8	1.14340	92
1.082	0.03455	8	1.11655	92	1.112	0.03232	7	1.14432	93
1.083	0.03447	8	1.11747	92	1.113	0.03225	7	1.14525	93
1.084	0.03439	7	1.11839	93	1.114	0.03218	7	1.14618	93
1.085	0.03432	8	1.11932	92	1.115	0.03211	7	1.14711	93
1.086	0.03424	7	1.12024	93	1.116	0.03204	7	1.14804	93
1.087	0.03417	8	1.12117	92	1.117	0.03197	7	1.14897	93
1.088	0.03409	8	1.12209	92	1.118	0.03190	7	1.14990	93
1.089	0.03401	7	1.12301	93	1.119	0.03183	8	1.15083	92
1.090	0.03394	8	1.12394	92	1.120	0.03175	7	1.15175	93
1.091	0.03386	7	1.12486	93	1.121	0.03168	7	1.15268	93
1.092	0.03379	8	1.12579	92	1.122	0.03161	7	1.15361	93
1.093	0.03371	7	1.12671	93	1.123	0.03154	7	1.15454	93
1.094	0.03364	7	1.12764	93	1.124	0.03147	7	1.15547	93
1.095	0.03357	8	1.12857	92	1.125	0.03140	7	1.15640	93
1.096	0.03349	7	1.12949	93	1.126	0.03133	7	1.15733	93
1.097	0.03342	8	1.13042	92	1.127	0.03126	6	1.15826	94
1.098	0.03334	7	1.13134	93	1.128	0.03120	7	1.15920	93
1.099	0.03327	7	1.13227	93	1.129	0.03113	7	1.16013	93
1.100	0.03320	8	1.13320	92	1.130	0.03106	7	1.16106	93
1.101	0.03312	7	1.13412	93	1.131	0.03099	7	1.16199	93
1.102	0.03305	8	1.13505	93	1.132	0.03092	7	1.16292	93
1.103	0.03298	7	1.13598	92	1.133	0.03085	7	1.16385	93
1.104	0.03290	7	1.13690	93	1.134	0.03078	7	1.16478	93
1.105	0.03283	7	1.13783	93	1.135	0.03071	6	1.16571	94
1.106	0.03276	8	1.13876	92	1.136	0.03065	7	1.16665	93
1.107	0.03268	7	1.13968	93	1.137	0.03058	7	1.16758	93
1.108	0.03261	7	1.14061	93	1.138	0.03051	7	1.16851	93
1.109	0.03254	7	1.14154	93	1.139	0.03044	7	1.16944	93
1.110	0.03247		1.14247		1.140	0.03037		1.16937	

1140

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.140	0.03037	6	1.17037	94	1.170	0.02841	6	1.18841	94
1.141	0.03031	7	1.17131	93	1.171	0.02835	6	1.18935	94
1.142	0.03024	7	1.17224	93	1.172	0.02829	7	1.19029	94
1.143	0.03017	6	1.17317	94	1.173	0.02822	6	1.19122	93
1.144	0.03011	7	1.17411	93	1.174	0.02816	6	1.19216	94
1.145	0.03004	7	1.17504	93	1.175	0.02810	7	1.19310	93
1.146	0.02997	6	1.17597	94	1.176	0.02803	6	1.19403	94
1.147	0.02991	7	1.17691	93	1.177	0.02797	6	1.19497	94
1.148	0.02984	7	1.17784	93	1.178	0.02791	6	1.19591	94
1.149	0.02977	6	1.17877	94	1.179	0.02785	6	1.19685	94
1.150	0.02971	7	1.17971	93	1.180	0.02779	7	1.19779	93
1.151	0.02964	7	1.18064	93	1.181	0.02772	6	1.19872	94
1.152	0.02957	6	1.18157	94	1.182	0.02766	6	1.19966	94
1.153	0.02951	7	1.18251	93	1.183	0.02760	6	1.20060	94
1.154	0.02944	6	1.18344	94	1.184	0.02754	6	1.20154	94
1.155	0.02938	7	1.18438	93	1.185	0.02748	6	1.20248	94
1.156	0.02931	6	1.18531	94	1.186	0.02742	7	1.20342	93
1.157	0.02925	7	1.18625	93	1.187	0.02735	6	1.20435	94
1.158	0.02918	6	1.18718	94	1.188	0.02729	6	1.20529	94
1.159	0.02912	7	1.18812	93	1.189	0.02723	6	1.20623	94
1.160	0.02905	6	1.18905	94	1.190	0.02717	6	1.20717	94
1.161	0.02899	7	1.18999	93	1.191	0.02711	6	1.20811	94
1.162	0.02892	6	1.19092	94	1.192	0.02705	6	1.20905	94
1.163	0.02886	7	1.19186	93	1.193	0.02699	6	1.21099	94
1.164	0.02879	6	1.19279	94	1.194	0.02693	6	1.21293	94
1.165	0.02873	6	1.19373	94	1.195	0.02687	6	1.21387	94
1.166	0.02867	7	1.19467	93	1.196	0.02681	6	1.21481	94
1.167	0.02860	6	1.19560	94	1.197	0.02675	6	1.21575	94
1.168	0.02854	6	1.19654	94	1.198	0.02669	6	1.21669	94
1.169	0.02848	7	1.19748	93	1.199	0.02663	6	1.21763	94
1.170	0.02841		1.19841		1.200	0.02657		1.21857	

1·200

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1·200	0·02657	6	1·22657	94	1·230	0·02485	6	1·25485	94
1·201	0·02651	6	1·22751	94	1·231	0·02479	5	1·25579	95
1·202	0·02645	6	1·22845	94	1·232	0·02474	6	1·25674	94
1·203	0·02639	5	1·22939	95	1·233	0·02468	5	1·25768	95
1·204	0·02634	6	1·23034	94	1·234	0·02463	6	1·25863	94
1·205	0·02628	6	1·23128	94	1·235	0·02457	5	1·25957	95
1·206	0·02622	6	1·23222	94	1·236	0·02452	6	1·26052	94
1·207	0·02616	6	1·23316	94	1·237	0·02446	5	1·26146	95
1·208	0·02610	6	1·23410	94	1·238	0·02441	6	1·26241	94
1·209	0·02604	5	1·23504	95	1·239	0·02435	5	1·26335	95
1·210	0·02599	6	1·23599	94	1·240	0·02430	6	1·26430	94
1·211	0·02593	6	1·23693	94	1·241	0·02424	5	1·26524	95
1·212	0·02587	6	1·23787	94	1·242	0·02419	5	1·26619	95
1·213	0·02581	6	1·23881	94	1·243	0·02414	6	1·26714	94
1·214	0·02575	5	1·23975	95	1·244	0·02408	5	1·26808	95
1·215	0·02570	6	1·24070	94	1·245	0·02403	6	1·26903	94
1·216	0·02564	6	1·24164	94	1·246	0·02397	5	1·26997	95
1·217	0·02558	6	1·24258	94	1·247	0·02392	5	1·27092	95
1·218	0·02552	6	1·24352	94	1·248	0·02387	5	1·27187	95
1·219	0·02547	5	1·24447	95	1·249	0·02381	6	1·27281	94
		6		94			5		95
1·220	0·02541	6	1·24541	94	1·250	0·02376	5	1·27376	95
1·221	0·02535	5	1·24635	95	1·251	0·02371	6	1·27471	94
1·222	0·02530	6	1·24730	94	1·252	0·02365	5	1·27565	95
1·223	0·02524	6	1·24824	94	1·253	0·02360	5	1·27660	95
1·224	0·02518	5	1·24918	95	1·254	0·02355	5	1·27755	95
1·225	0·02513	6	1·25013	94	1·255	0·02350	6	1·27850	94
1·226	0·02507	5	1·25107	95	1·256	0·02344	5	1·27944	95
1·227	0·02502	6	1·25202	94	1·257	0·02339	5	1·28039	95
1·228	0·02496	6	1·25296	94	1·258	0·02334	5	1·28134	95
1·229	0·02490	5	1·25390	95	1·259	0·02329	6	1·28229	94
1·230	0·02485		1·25485		1·260	0·02323		1·28323	

1.260

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.260	0.02323		1.28323		1.290	0.02172		1.31172	
1.261	0.02318	5	1.28418	95	1.291	0.02167	5	1.31267	95
1.262	0.02313	5	1.28513	95	1.292	0.02162	5	1.31362	95
1.263	0.02308	5	1.28608	95	1.293	0.02158	4	1.31458	96
1.264	0.02303	5	1.28703	95	1.294	0.02153	5	1.31553	95
		6		94			5		95
1.265	0.02297	5	1.28797	95	1.295	0.02148	5	1.31648	95
1.266	0.02292	5	1.28892	95	1.296	0.02143	5	1.31743	95
1.267	0.02287	5	1.28987	95	1.297	0.02138	5	1.31838	95
1.268	0.02282	5	1.29082	95	1.298	0.02133	5	1.31933	95
1.269	0.02277	5	1.29177	95	1.299	0.02129	4	1.32029	96
		5		95			5		95
1.270	0.02272		1.29272		1.300	0.02124		1.32124	
1.271	0.02267	5	1.29367	95	1.301	0.02119	5	1.32219	95
1.272	0.02262	5	1.29462	95	1.302	0.02114	5	1.32314	95
1.273	0.02257	5	1.29557	95	1.303	0.02110	4	1.32410	96
1.274	0.02252	5	1.29652	95	1.304	0.02105	5	1.32505	95
		6		94			5		95
1.275	0.02246	5	1.29746	95	1.305	0.02100	5	1.32600	95
1.276	0.02241	5	1.29841	95	1.306	0.02095	5	1.32695	95
1.277	0.02236	5	1.29936	95	1.307	0.02091	4	1.32791	96
1.278	0.02231	5	1.30031	95	1.308	0.02086	5	1.32886	95
1.279	0.02226	5	1.30126	95	1.309	0.02081	5	1.32981	95
		5		95			4		96
1.280	0.02221		1.30221		1.310	0.02077		1.33077	
1.281	0.02216	5	1.30316	95	1.311	0.02072	5	1.33172	95
1.282	0.02211	5	1.30411	95	1.312	0.02067	5	1.33267	95
1.283	0.02207	4	1.30507	96	1.313	0.02063	4	1.33363	96
1.284	0.02202	5	1.30602	95	1.314	0.02058	5	1.33458	95
		5		95			5		95
1.285	0.02197	5	1.30697	95	1.315	0.02053	4	1.33553	96
1.286	0.02192	5	1.30792	95	1.316	0.02049	5	1.33649	95
1.287	0.02187	5	1.30887	95	1.317	0.02044	5	1.33744	95
1.288	0.02182	5	1.30982	95	1.318	0.02040	4	1.33840	96
1.289	0.02177	5	1.31077	95	1.319	0.02035	5	1.33935	95
		5		95			5		95
1.290	0.02172		1.31172		1.320	0.02030		1.34030	

1:320

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.3200	0.02030		1.34030		1.3500	0.01898		1.36898	
1.3210	0.02026	4	1.34126	96	1.3510	0.01894	4	1.36994	96
1.3220	0.02021	5	1.34221	95	1.3520	0.01889	5	1.37089	95
1.3230	0.02017	4	1.34317	96	1.3530	0.01885	4	1.37185	96
1.3240	0.02012	5	1.34412	95	1.3540	0.01881	4	1.37281	96
		4		96			4		
1.3250	0.02008	5	1.34508	95	1.3550	0.01877	5	1.37377	95
1.3260	0.02003	4	1.34603	96	1.3560	0.01872	4	1.37472	96
1.3270	0.01999	5	1.34699	95	1.3570	0.01868	4	1.37568	96
1.3280	0.01994	4	1.34794	96	1.3580	0.01864	4	1.37664	96
1.3290	0.01990	5	1.34890	95	1.3590	0.01860	4	1.37760	96
		4		96			4		
1.3300	0.01985		1.34985		1.3600	0.01856		1.37856	
1.3310	0.01981	4	1.35081	96	1.3610	0.01851	5	1.37951	95
1.3320	0.01976	5	1.35176	95	1.3620	0.01847	4	1.38047	96
1.3330	0.01972	4	1.35272	96	1.3630	0.01843	4	1.38143	96
1.3340	0.01967	5	1.35367	95	1.3640	0.01839	4	1.38239	96
		4		96			4		
1.3350	0.01963	4	1.35463	96	1.3650	0.01835	4	1.38335	96
1.3360	0.01959	5	1.35559	95	1.3660	0.01831	4	1.38431	96
1.3370	0.01954	4	1.35654	96	1.3670	0.01827	5	1.38527	95
1.3380	0.01950	4	1.35750	96	1.3680	0.01822	4	1.38622	96
1.3390	0.01945	5	1.35845	95	1.3690	0.01818	4	1.38718	96
		4		96			4		
1.3400	0.01941		1.35941		1.3700	0.01814		1.38814	
1.3410	0.01937	4	1.36037	96	1.3710	0.01810	4	1.38910	96
1.3420	0.01932	5	1.36132	95	1.3720	0.01806	4	1.39006	96
1.3430	0.01928	4	1.36228	96	1.3730	0.01802	4	1.39102	96
1.3440	0.01924	4	1.36324	96	1.3740	0.01798	4	1.39198	96
		5		95			4		
1.3450	0.01919	4	1.36419	96	1.3750	0.01794	4	1.39294	96
1.3460	0.01915	4	1.36515	96	1.3760	0.01790	4	1.39390	96
1.3470	0.01911	4	1.36611	96	1.3770	0.01786	4	1.39486	96
1.3480	0.01906	5	1.36706	95	1.3780	0.01782	4	1.39582	96
1.3490	0.01902	4	1.36802	96	1.3790	0.01778	4	1.39678	96
		4		96			4		
1.3500	0.01898		1.36898		1.3800	0.01774		1.39774	

1.380

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.380	0.01774		1.38774		1.410	0.01858		1.42658	
1.381	0.01770	4	1.39870	96	1.411	0.01654	4	1.42754	96
1.382	0.01766	4	1.39966	96	1.412	0.01650	4	1.42850	96
1.383	0.01762	4	1.40062	96	1.413	0.01646	4	1.42946	96
1.384	0.01758	4	1.40158	96	1.414	0.01643	3	1.43043	97
		4		96			4		96
1.385	0.01754		1.40254		1.415	0.01639		1.43139	
1.386	0.01750	4	1.40350	96	1.416	0.01635	4	1.43235	96
1.387	0.01746	4	1.40446	96	1.417	0.01632	4	1.43332	97
1.388	0.01742	4	1.40542	96	1.418	0.01628	4	1.43428	96
1.389	0.01738	4	1.40638	96	1.419	0.01624	4	1.43524	96
		4		96			3		97
1.390	0.01734		1.40734		1.420	0.01621		1.43621	
1.391	0.01730	4	1.40830	96	1.421	0.01617	4	1.43717	96
1.392	0.01726	4	1.40926	96	1.422	0.01613	4	1.43813	96
1.393	0.01722	4	1.41022	96	1.423	0.01610	3	1.43910	97
1.394	0.01719	3	1.41119	97	1.424	0.01606	4	1.44006	96
		4		96			4		96
1.395	0.01715		1.41215		1.425	0.01602		1.44102	
1.396	0.01711	4	1.41311	96	1.426	0.01599	3	1.44199	97
1.397	0.01707	4	1.41407	96	1.427	0.01595	4	1.44295	96
1.398	0.01703	4	1.41503	96	1.428	0.01591	4	1.44391	96
1.399	0.01699	4	1.41599	96	1.429	0.01588	3	1.44488	97
		4		96			4		96
1.400	0.01695		1.41695		1.430	0.01584		1.44584	
1.401	0.01692	3	1.41792	97	1.431	0.01581	3	1.44681	97
1.402	0.01688	4	1.41888	96	1.432	0.01577	4	1.44777	96
1.403	0.01684	4	1.41984	96	1.433	0.01574	3	1.44874	97
1.404	0.01680	4	1.42080	96	1.434	0.01570	4	1.44970	96
		4		96			4		96
1.405	0.01676		1.42176		1.435	0.01566		1.45066	
1.406	0.01673	3	1.42273	97	1.436	0.01563	3	1.45163	97
1.407	0.01669	4	1.42369	96	1.437	0.01559	4	1.45259	96
1.408	0.01665	4	1.42465	96	1.438	0.01556	3	1.45356	97
1.409	0.01661	4	1.42561	96	1.439	0.01552	4	1.45452	96
		3		97			3		97
1.410	0.01858		1.42658		1.440	0.01549		1.45549	

0.600

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
0.600	0.09732		0.69732		0.630	0.09146		0.72146	
0.601	0.09712	20	0.69812	80	0.631	0.09127	19	0.72227	81
0.602	0.09692	20	0.69892	80	0.632	0.09108	19	0.72308	81
0.603	0.09672	20	0.69972	80	0.633	0.09090	18	0.72390	82
0.604	0.09652	20	0.70052	80	0.634	0.09071	19	0.72471	81
0.605	0.09632	20	0.70132	80	0.635	0.09052	19	0.72552	81
0.606	0.09612	19	0.70212	81	0.636	0.09033	19	0.72633	81
0.607	0.09593	20	0.70293	80	0.637	0.09014	18	0.72714	82
0.608	0.09573	20	0.70373	80	0.638	0.08996	19	0.72796	81
0.609	0.09553	20	0.70453	80	0.639	0.08977	19	0.72877	81
0.610	0.09533	19	0.70533	81	0.640	0.08958	18	0.72958	82
0.611	0.09514	20	0.70614	80	0.641	0.08940	19	0.73040	81
0.612	0.09494	20	0.70694	80	0.642	0.08921	19	0.73121	81
0.613	0.09474	19	0.70774	81	0.643	0.08902	18	0.73202	82
0.614	0.09455	20	0.70855	80	0.644	0.08884	19	0.73284	81
0.615	0.09435	19	0.70935	81	0.645	0.08865	18	0.73365	82
0.616	0.09416	20	0.71016	80	0.646	0.08847	18	0.73447	82
0.617	0.09396	19	0.71096	81	0.647	0.08829	19	0.73529	81
0.618	0.09377	20	0.71177	80	0.648	0.08810	18	0.73610	82
0.619	0.09357	19	0.71257	81	0.649	0.08792	18	0.73692	82
0.620	0.09338	19	0.71338	81	0.650	0.08774	19	0.73774	81
0.621	0.09319	20	0.71419	80	0.651	0.08755	18	0.73855	82
0.622	0.09299	19	0.71499	81	0.652	0.08737	18	0.73937	82
0.623	0.09280	19	0.71580	81	0.653	0.08719	18	0.74019	82
0.624	0.09261	19	0.71661	81	0.654	0.08701	18	0.74101	82
0.625	0.09242	19	0.71742	81	0.655	0.08683	19	0.74183	81
0.626	0.09223	19	0.71823	81	0.656	0.08664	18	0.74264	82
0.627	0.09204	20	0.71904	80	0.657	0.08646	18	0.74346	82
0.628	0.09184	19	0.71984	81	0.658	0.08628	18	0.74428	82
0.629	0.09165	19	0.72065	81	0.659	0.08610	18	0.74510	82
0.630	0.09146		0.72146		0.660	0.08592		0.74592	

1.500

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.500	0.01352		1.51352		1.530	0.01263		1.54263	
1.501	0.01349	3	1.51449	97	1.531	0.01260	3	1.54360	97
1.502	0.01346	3	1.51546	97	1.532	0.01257	3	1.54457	97
1.503	0.01343	3	1.51643	97	1.533	0.01255	2	1.54555	98
1.504	0.01340	3	1.51740	97	1.534	0.01252	3	1.54652	97
		3		97			3		97
1.505	0.01337	3	1.51837	97	1.535	0.01249	3	1.54749	97
1.506	0.01334	3	1.51934	97	1.536	0.01246	3	1.54846	97
1.507	0.01331	3	1.52031	97	1.537	0.01243	3	1.54943	97
1.508	0.01328	3	1.52128	97	1.538	0.01240	2	1.55040	98
1.509	0.01325	3	1.52225	97	1.539	0.01238	3	1.55138	97
		3		97			3		97
1.510	0.01322		1.52322		1.540	0.01235		1.55235	
1.511	0.01319	3	1.52419	97	1.541	0.01232	3	1.55332	97
1.512	0.01316	3	1.52516	97	1.542	0.01229	3	1.55429	97
1.513	0.01313	3	1.52613	97	1.543	0.01226	3	1.55526	97
1.514	0.01310	3	1.52710	97	1.544	0.01224	2	1.55624	98
		3		97			3		97
1.515	0.01307	3	1.52807	97	1.545	0.01221	3	1.55721	97
1.516	0.01304	3	1.52904	97	1.546	0.01218	3	1.55818	97
1.517	0.01301	3	1.53001	97	1.547	0.01215	3	1.55915	97
1.518	0.01298	3	1.53098	97	1.548	0.01213	2	1.56013	98
1.519	0.01295	3	1.53195	97	1.549	0.01210	3	1.56110	97
		3		97			3		97
1.520	0.01292		1.53292		1.550	0.01207		1.56207	
1.521	0.01289	3	1.53389	97	1.551	0.01204	3	1.56304	97
1.522	0.01286	3	1.53486	97	1.552	0.01202	2	1.56402	98
1.523	0.01283	3	1.53583	97	1.553	0.01199	3	1.56499	97
1.524	0.01280	3	1.53680	97	1.554	0.01196	3	1.56596	97
		2		98			3		97
1.525	0.01278	3	1.53778	97	1.555	0.01193	2	1.56693	98
1.526	0.01275	3	1.53875	97	1.556	0.01191	3	1.56791	97
1.527	0.01272	3	1.53972	97	1.557	0.01188	3	1.56888	97
1.528	0.01269	3	1.54069	97	1.558	0.01185	3	1.56985	97
1.529	0.01266	3	1.54166	97	1.559	0.01183	2	1.57083	98
		3		97			3		97
1.530	0.01263		1.54263		1.560	0.01180		1.57180	

1.560

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.5600	0.01180		1.57180		1.5900	0.01102		1.60102	
1.5610	0.01177	3	1.57277	97	1.5910	0.01100	2	1.60200	98
1.5620	0.01175	2	1.57375	98	1.5920	0.01097	3	1.60297	97
1.5630	0.01172	3	1.57472	97	1.5930	0.01095	2	1.60395	98
1.5640	0.01169	3	1.57569	97	1.5940	0.01092	3	1.60492	97
		2		98			2		98
1.5650	0.01167		1.57667		1.5950	0.01090		1.60590	
1.5660	0.01164	3	1.57764	97	1.5960	0.01087	3	1.60687	97
1.5670	0.01161	3	1.57861	97	1.5970	0.01085	2	1.60785	98
1.5680	0.01159	2	1.57959	98	1.5980	0.01082	3	1.60882	97
1.5690	0.01156	3	1.58056	97	1.5990	0.01080	2	1.60980	98
		3		97			3		97
1.5700	0.01153		1.58153		1.6000	0.01077		1.61077	
1.5710	0.01151	2	1.58251	98	1.6010	0.01075	2	1.61175	98
1.5720	0.01148	3	1.58348	97	1.6020	0.01073	2	1.61273	98
1.5730	0.01146	2	1.58446	98	1.6030	0.01070	3	1.61370	97
1.5740	0.01143	3	1.58543	97	1.6040	0.01068	2	1.61468	98
		3		97			3		97
1.5750	0.01140		1.58640		1.6050	0.01065		1.61565	
1.5760	0.01138	2	1.58738	98	1.6060	0.01063	2	1.61663	98
1.5770	0.01135	3	1.58835	97	1.6070	0.01060	3	1.61760	97
1.5780	0.01133	2	1.58933	98	1.6080	0.01058	2	1.61858	98
1.5790	0.01130	3	1.59030	97	1.6090	0.01056	2	1.61956	98
		2		98			3		97
1.5800	0.01128		1.59128		1.6100	0.01053		1.62053	
1.5810	0.01125	3	1.59225	97	1.6110	0.01051	2	1.62151	98
1.5820	0.01122	3	1.59322	97	1.6120	0.01048	3	1.62248	97
1.5830	0.01120	2	1.59420	98	1.6130	0.01046	2	1.62346	98
1.5840	0.01117	3	1.59517	97	1.6140	0.01044	2	1.62444	98
		2		98			3		97
1.5850	0.01115		1.59615		1.6150	0.01041		1.62541	
1.5860	0.01112	3	1.59712	97	1.6160	0.01039	2	1.62639	98
1.5870	0.01110	2	1.59810	98	1.6170	0.01037	2	1.62737	98
1.5880	0.01107	3	1.59907	97	1.6180	0.01034	3	1.62834	97
1.5890	0.01105	2	1.60005	98	1.6190	0.01032	2	1.62932	98
		3		97			2		98
1.5900	0.01102		1.60102		1.6200	0.01030		1.63030	

1 620

A	B	C	Dif	A	B	C	Dif
1 6200 01020		1 62030		1 6500 00982		1 65982	
	1	63127	97	1 6510 00959	3	1 66059	97
	1	63225	98	1 6520 00957	2	1 66157	98
	1	63322	97	1 6530 00955	2	1 66255	98
	1	63420	98	1 6540 00953	2	1 66353	98
	1	63518	98	1 6550 00951	3	1 66451	97
	1	63616	97	1 6560 00948	2	1 66548	98
	1	63714	98	1 6570 00946	2	1 66646	98
	1	63811	98	1 6580 00944	2	1 66744	98
	1	63909	97	1 6590 00942	2	1 66842	98
1 6200 01040		1 64008	98	1 6600 00940		1 66940	98
	1	64104	98	1 6610 00938	2	1 67038	98
	1	64202	97	1 6620 00936	2	1 67136	97
	1	64300	98	1 6630 00933	3	1 67233	98
	1	64400	98	1 6640 00931	2	1 67331	98
	1	64500	98	1 6650 00929	2	1 67429	98
	1	64600	98	1 6660 00927	2	1 67527	98
	1	64700	98	1 6670 00925	2	1 67625	98
	1	64800	98	1 6680 00923	2	1 67723	98
	1	64900	98	1 6690 00921	2	1 67821	98
1 6200 01060		1 64908	98	1 6700 00919		1 67919	98
	1	65004	98	1 6710 00917		1 68017	98
	1	65102	97	1 6720 00915		1 68115	97
	1	65200	98	1 6730 00912		1 68212	98
	1	65300	98	1 6740 00910		1 68310	98
	1	65408	98	1 6750 00908		1 68408	98
	1	65506	98	1 6760 00906		1 68506	98
	1	65604	98	1 6770 00904		1 68604	98
	1	65702	98	1 6780 00902		1 68702	98
	1	65800	98	1 6790 00900		1 68800	98
1 6200 01080		1 65808	98	1 6800 00898		1 68908	98

1 680

1.680

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.680	0.00898		1.68898		1.710	0.00839		1.71839	
1.681	0.00896	2	1.68996	98	1.711	0.00837	2	1.71937	98
1.682	0.00894	2	1.69094	98	1.712	0.00835	2	1.72035	98
1.683	0.00892	2	1.69192	98	1.713	0.00833	2	1.72133	98
1.684	0.00890	2	1.69290	98	1.714	0.00831	2	1.72231	98
1.685	0.00888	2	1.69388	98	1.715	0.00829	2	1.72329	98
1.686	0.00886	2	1.69486	98	1.716	0.00827	2	1.72427	98
1.687	0.00884	2	1.69584	98	1.717	0.00825	2	1.72525	98
1.688	0.00882	2	1.69682	98	1.718	0.00823	1	1.72623	99
1.689	0.00880	2	1.69780	98	1.719	0.00822	2	1.72722	98
1.690	0.00878		1.69878		1.720	0.00820		1.72820	
1.691	0.00876	2	1.69976	98	1.721	0.00818	2	1.72918	98
1.692	0.00874	2	1.70074	98	1.722	0.00816	2	1.73016	98
1.693	0.00872	2	1.70172	98	1.723	0.00814	2	1.73114	98
1.694	0.00870	2	1.70270	98	1.724	0.00812	2	1.73212	98
1.695	0.00868	2	1.70368	98	1.725	0.00810	1	1.73310	99
1.696	0.00866	2	1.70466	98	1.726	0.00809	2	1.73409	98
1.697	0.00864	2	1.70564	98	1.727	0.00807	2	1.73507	98
1.698	0.00862	2	1.70662	98	1.728	0.00805	2	1.73605	98
1.699	0.00860	2	1.70760	98	1.729	0.00803	2	1.73703	98
1.700	0.00858		1.70858		1.730	0.00801		1.73801	
1.701	0.00856	2	1.70956	98	1.731	0.00799	1	1.73899	98
1.702	0.00854	2	1.71054	98	1.732	0.00798	2	1.73998	99
1.703	0.00852	2	1.71152	98	1.733	0.00796	2	1.74096	98
1.704	0.00850	2	1.71250	98	1.734	0.00794	2	1.74194	98
1.705	0.00848	2	1.71348	98	1.735	0.00792	2	1.74292	98
1.706	0.00846	2	1.71446	98	1.736	0.00790	1	1.74390	99
1.707	0.00844	2	1.71544	98	1.737	0.00789	2	1.74489	98
1.708	0.00842	1	1.71642	99	1.738	0.00787	2	1.74587	98
1.709	0.00841	2	1.71741	98	1.739	0.00785	2	1.74685	98
1.710	0.00839		1.71839		1.740	0.00783		1.74783	

1.500

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.500	0.01352		1.51352		1.530	0.01263		1.54263	
1.501	0.01349	3	1.51449	97	1.531	0.01260	3	1.54360	97
1.502	0.01346	3	1.51546	97	1.532	0.01257	3	1.54457	97
1.503	0.01343	3	1.51643	97	1.533	0.01255	2	1.54555	98
1.504	0.01340	3	1.51740	97	1.534	0.01252	3	1.54652	97
		3		97			3		97
1.505	0.01337		1.51837		1.535	0.01249		1.54749	
1.506	0.01334	3	1.51934	97	1.536	0.01246	3	1.54846	97
1.507	0.01331	3	1.52031	97	1.537	0.01243	3	1.54943	97
1.508	0.01328	3	1.52128	97	1.538	0.01240	2	1.55040	98
1.509	0.01325	3	1.52225	97	1.539	0.01238	3	1.55138	97
		3		97			3		97
1.510	0.01322		1.52322		1.540	0.01235		1.55235	
1.511	0.01319	3	1.52419	97	1.541	0.01232	3	1.55332	97
1.512	0.01316	3	1.52516	97	1.542	0.01229	3	1.55429	97
1.513	0.01313	3	1.52613	97	1.543	0.01226	3	1.55526	97
1.514	0.01310	3	1.52710	97	1.544	0.01224	2	1.55624	98
		3		97			3		97
1.515	0.01307		1.52807		1.545	0.01221		1.55721	
1.516	0.01304	3	1.52904	97	1.546	0.01218	3	1.55818	97
1.517	0.01301	3	1.53001	97	1.547	0.01215	3	1.55915	97
1.518	0.01298	3	1.53098	97	1.548	0.01213	2	1.56013	98
1.519	0.01295	3	1.53195	97	1.549	0.01210	3	1.56110	97
		3		97			3		97
1.520	0.01292		1.53292		1.550	0.01207		1.56207	
1.521	0.01289	3	1.53389	97	1.551	0.01204	3	1.56304	97
1.522	0.01286	3	1.53486	97	1.552	0.01202	2	1.56402	98
1.523	0.01283	3	1.53583	97	1.553	0.01199	3	1.56499	97
1.524	0.01280	3	1.53680	97	1.554	0.01196	3	1.56596	97
		2		98			3		97
1.525	0.01278		1.53778		1.555	0.01193		1.56693	
1.526	0.01275	3	1.53875	97	1.556	0.01191	2	1.56791	98
1.527	0.01272	3	1.53972	97	1.557	0.01188	3	1.56888	97
1.528	0.01269	3	1.54069	97	1.558	0.01185	3	1.56985	97
1.529	0.01266	3	1.54166	97	1.559	0.01183	2	1.57083	98
		3		97			3		97
1.530	0.01263		1.54263		1.560	0.01180		1.57180	

1.560

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.5600	0.01180		1.57180		1.5900	0.01102		1.60102	
1.5610	0.01177	3	1.57277	97	1.5910	0.01100	2	1.60200	98
1.5620	0.01175	2	1.57375	98	1.5920	0.01097	3	1.60297	97
1.5630	0.01172	3	1.57472	97	1.5930	0.01095	2	1.60395	98
1.5640	0.01169	3	1.57569	97	1.5940	0.01092	3	1.60492	97
		2		98			2		98
1.5650	0.01167		1.57667		1.5950	0.01090		1.60590	
1.5660	0.01164	3	1.57764	97	1.5960	0.01087	3	1.60687	97
1.5670	0.01161	3	1.57861	97	1.5970	0.01085	2	1.60785	98
1.5680	0.01159	2	1.57959	98	1.5980	0.01082	3	1.60882	97
1.5690	0.01156	3	1.58056	97	1.5990	0.01080	3	1.60980	98
		3		97			3		97
1.5700	0.01153		1.58153		1.6000	0.01077		1.61077	
1.5710	0.01151	2	1.58251	98	1.6010	0.01075	2	1.61175	98
1.5720	0.01148	3	1.58348	97	1.6020	0.01073	2	1.61273	98
1.5730	0.01146	2	1.58446	98	1.6030	0.01070	3	1.61370	97
1.5740	0.01143	3	1.58543	97	1.6040	0.01068	2	1.61468	98
		3		97			3		97
1.5750	0.01140		1.58640		1.6050	0.01065		1.61565	
1.5760	0.01138	2	1.58738	98	1.6060	0.01063	2	1.61663	98
1.5770	0.01135	3	1.58835	97	1.6070	0.01060	3	1.61760	97
1.5780	0.01133	2	1.58933	98	1.6080	0.01058	2	1.61858	98
1.5790	0.01130	3	1.59030	97	1.6090	0.01056	2	1.61956	98
		2		98			3		97
1.5800	0.01128		1.59128		1.6100	0.01053		1.62053	
1.5810	0.01125	3	1.59225	97	1.6110	0.01051	2	1.62151	98
1.5820	0.01122	3	1.59322	97	1.6120	0.01048	3	1.62248	97
1.5830	0.01120	2	1.59420	98	1.6130	0.01046	2	1.62346	98
1.5840	0.01117	3	1.59517	97	1.6140	0.01044	2	1.62444	98
		2		98			3		97
1.5850	0.01115		1.59615		1.6150	0.01041		1.62541	
1.5860	0.01112	3	1.59712	97	1.6160	0.01039	2	1.62639	98
1.5870	0.01110	2	1.59810	98	1.6170	0.01037	2	1.62737	98
1.5880	0.01107	3	1.59907	97	1.6180	0.01034	3	1.62834	97
1.5890	0.01105	2	1.60005	98	1.6190	0.01032	2	1.62932	98
		3		97			2		98
1.5900	0.01102		1.60102		1.6200	0.01030		1.63030	

1.620

A	B	Dif.	C	Dif.	A	B	Dif.	C	Dif.
1.620	0.01030		1.63030		1.650	0.00962		1.65962	
1.621	0.01027	3	1.63127	97	1.651	0.00959	3	1.66059	97
1.622	0.01025	2	1.63225	98	1.652	0.00957	2	1.66157	98
1.623	0.01022	3	1.63322	97	1.653	0.00955	2	1.66255	98
1.624	0.01020	2	1.63420	98	1.654	0.00953	2	1.66353	98
1.625	0.01018		1.63518		1.655	0.00951		1.66451	
1.626	0.01016	2	1.63616	98	1.656	0.00948	3	1.66548	97
1.627	0.01013	3	1.63713	97	1.657	0.00946	2	1.66646	98
1.628	0.01011	2	1.63811	98	1.658	0.00944	2	1.66744	98
1.629	0.01009	2	1.63909	98	1.659	0.00942	2	1.66842	98
		3		97			2		98
1.630	0.01006		1.64006		1.660	0.00940		1.66940	
1.631	0.01004	2	1.64104	98	1.661	0.00938	2	1.67038	98
1.632	0.01002	2	1.64202	98	1.662	0.00936	2	1.67136	98
1.633	0.00999	3	1.64299	97	1.663	0.00933	3	1.67233	97
1.634	0.00997	2	1.64397	98	1.664	0.00931	2	1.67331	98
1.635	0.00995		1.64495		1.665	0.00929		1.67429	
1.636	0.00993	2	1.64593	98	1.666	0.00927	2	1.67527	98
1.637	0.00990	3	1.64690	97	1.667	0.00925	2	1.67625	98
1.638	0.00988	2	1.64788	98	1.668	0.00923	2	1.67723	98
1.639	0.00986	2	1.64886	98	1.669	0.00921	2	1.67821	98
1.640	0.00984		1.64984		1.670	0.00919		1.67919	
1.641	0.00981	3	1.65081	97	1.671	0.00917	2	1.68017	98
1.642	0.00979	2	1.65179	98	1.672	0.00915	2	1.68115	98
1.643	0.00977	2	1.65277	98	1.673	0.00912	3	1.68212	97
1.644	0.00975	2	1.65375	98	1.674	0.00910	2	1.68310	98
							2		98
1.645	0.00973		1.65473		1.675	0.00908		1.68408	
1.646	0.00970	3	1.65570	97	1.676	0.00906	2	1.68506	98
1.647	0.00968	2	1.65668	98	1.677	0.00904	2	1.68604	98
1.648	0.00966	2	1.65766	98	1.678	0.00902	2	1.68702	98
1.649	0.00964	2	1.65864	98	1.679	0.00900	2	1.68800	98
							2		98
1.650	0.00962		1.65962		1.680	0.00898		1.68898	

1.680

A	B	Dif.	C	Dif.	A	B	Dif.	C	Dif.
1.6800.00898			1.68898		1.7100.00839			1.71839	
1.6810.00896	2		1.68996	98	1.7110.00837	2		1.71937	98
1.6820.00894	2		1.69094	98	1.7120.00835	2		1.72035	98
1.6830.00892	2		1.69192	98	1.7130.00833	2		1.72133	98
1.6840.00890	2		1.69290	98	1.7140.00831	2		1.72231	98
1.6850.00888	2		1.69388	98	1.7150.00829	2		1.72329	98
1.6860.00886	2		1.69486	98	1.7160.00827	2		1.72427	98
1.6870.00884	2		1.69584	98	1.7170.00825	2		1.72525	98
1.6880.00882	2		1.69682	98	1.7180.00823	1		1.72623	99
1.6890.00880	2		1.69780	98	1.7190.00822	2		1.72722	98
1.6900.00878	2		1.69878	98	1.7200.00820	2		1.72820	98
1.6910.00876	2		1.69976	98	1.7210.00818	2		1.72918	98
1.6920.00874	2		1.70074	98	1.7220.00816	2		1.73016	98
1.6930.00872	2		1.70172	98	1.7230.00814	2		1.73114	98
1.6940.00870	2		1.70270	98	1.7240.00812	2		1.73212	98
1.6950.00868	2		1.70368	98	1.7250.00810	1		1.73310	99
1.6960.00866	2		1.70466	98	1.7260.00809	2		1.73409	98
1.6970.00864	2		1.70564	98	1.7270.00807	2		1.73507	98
1.6980.00862	2		1.70662	98	1.7280.00805	2		1.73605	98
1.6990.00860	2		1.70760	98	1.7290.00803	2		1.73703	98
1.7000.00858	2		1.70858	98	1.7300.00801	2		1.73801	98
1.7010.00856	2		1.70956	98	1.7310.00799	1		1.73899	99
1.7020.00854	2		1.71054	98	1.7320.00798	2		1.73998	98
1.7030.00852	2		1.71152	98	1.7330.00796	2		1.74096	98
1.7040.00850	2		1.71250	98	1.7340.00794	2		1.74194	98
1.7050.00848	2		1.71348	98	1.7350.00792	2		1.74292	98
1.7060.00846	2		1.71446	98	1.7360.00790	1		1.74390	99
1.7070.00844	2		1.71544	98	1.7370.00789	2		1.74489	98
1.7080.00842	1		1.71642	99	1.7380.00787	2		1.74587	98
1.7090.00841	2		1.71741	98	1.7390.00785	2		1.74685	98
1.7100.00839			1.71839		1.7400.00783			1.74783	

1.740

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.740	0.00783		1.74783		1.770	0.00731		1.77731	
1.741	0.00781	2	1.74881	98	1.771	0.00730	1	1.77830	99
1.742	0.00780	1	1.74980	99	1.772	0.00728	2	1.77928	98
1.743	0.00778	2	1.75078	98	1.773	0.00726	2	1.78026	98
1.744	0.00776	2	1.75176	98	1.774	0.00725	1	1.78125	99
		2		98			2		98
1.745	0.00774		1.75274		1.775	0.00723		1.78223	
1.746	0.00773	1	1.75373	99	1.776	0.00721	2	1.78321	98
1.747	0.00771	2	1.75471	98	1.777	0.00720	1	1.78420	99
1.748	0.00769	2	1.75569	98	1.778	0.00718	2	1.78518	98
1.749	0.00767	2	1.75667	98	1.779	0.00716	2	1.78616	98
		1		99			1		99
1.750	0.00766		1.75766		1.780	0.00715		1.78715	
1.751	0.00764	2	1.75864	98	1.781	0.00713	2	1.78813	98
1.752	0.00762	2	1.75962	98	1.782	0.00712	1	1.78912	99
1.753	0.00760	2	1.76060	98	1.783	0.00710	2	1.79010	98
1.754	0.00759	1	1.76159	99	1.784	0.00708	2	1.79108	98
		2		98			1		99
1.755	0.00757		1.76257		1.785	0.00707		1.79207	
1.756	0.00755	2	1.76355	98	1.786	0.00705	2	1.79305	98
1.757	0.00753	2	1.76453	98	1.787	0.00703	2	1.79403	98
1.758	0.00752	1	1.76552	99	1.788	0.00702	1	1.79502	99
1.759	0.00750	2	1.76650	98	1.789	0.00700	2	1.79600	98
		2		98			1		99
1.760	0.00748		1.76748		1.790	0.00699		1.79699	
1.761	0.00747	1	1.76847	99	1.791	0.00697	2	1.79797	98
1.762	0.00745	2	1.76945	98	1.792	0.00696	1	1.79896	99
1.763	0.00743	2	1.77043	98	1.793	0.00694	2	1.79994	98
1.764	0.00741	2	1.77141	98	1.794	0.00692	2	1.80092	98
		1		99			1		99
1.765	0.00740		1.77240		1.795	0.00691		1.80191	
1.766	0.00738	2	1.77338	98	1.796	0.00689	2	1.80289	98
1.767	0.00736	2	1.77436	98	1.797	0.00688	1	1.80388	99
1.768	0.00735	1	1.77535	99	1.798	0.00686	2	1.80486	98
1.769	0.00733	2	1.77633	98	1.799	0.00684	2	1.80584	98
		2		98			1		99
1.770	0.00731		1.77731		1.800	0.00683		1.80683	

1.800

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.800	0.00683		1.80683		1.830	0.00638		1.83638	
1.801	0.00681	2	1.80781	98	1.831	0.00636	2	1.83736	98
1.802	0.00680	1	1.80880	99	1.832	0.00635	1	1.83835	99
1.803	0.00678	2	1.80978	98	1.833	0.00633	2	1.83933	98
1.804	0.00677	1	1.81077	99	1.834	0.00632	1	1.84032	99
		2		98			2		98
1.805	0.00675	1	1.81175	99	1.835	0.00630	1	1.84130	99
1.806	0.00674	2	1.81274	98	1.836	0.00629	2	1.84229	98
1.807	0.00672	1	1.81372	99	1.837	0.00628	1	1.84328	99
1.808	0.00671	2	1.81471	98	1.838	0.00626	2	1.84426	98
1.809	0.00669	1	1.81569	99	1.839	0.00625	1	1.84525	99
		2		98			2		98
1.810	0.00667	1	1.81667	99	1.840	0.00623	1	1.84623	99
1.811	0.00666	2	1.81766	98	1.841	0.00622	2	1.84722	98
1.812	0.00664	1	1.81864	99	1.842	0.00620	1	1.84820	99
1.813	0.00663	2	1.81963	98	1.843	0.00619	2	1.84919	98
1.814	0.00661	1	1.82061	99	1.844	0.00618	1	1.85018	99
		2		98			2		98
1.815	0.00660	1	1.82160	99	1.845	0.00616	1	1.85116	99
1.816	0.00658	2	1.82258	98	1.846	0.00615	2	1.85215	98
1.817	0.00657	1	1.82357	99	1.847	0.00613	1	1.85313	99
1.818	0.00655	2	1.82455	98	1.848	0.00612	2	1.85412	98
1.819	0.00654	1	1.82554	99	1.849	0.00611	1	1.85511	99
		2		98			2		98
1.820	0.00652	1	1.82652	99	1.850	0.00609	1	1.85609	99
1.821	0.00651	2	1.82751	98	1.851	0.00608	2	1.85708	98
1.822	0.00649	1	1.82849	99	1.852	0.00606	1	1.85806	99
1.823	0.00648	2	1.82948	98	1.853	0.00605	2	1.85905	98
1.824	0.00646	1	1.83046	99	1.854	0.00604	1	1.86004	99
		2		98			2		98
1.825	0.00645	1	1.83145	99	1.855	0.00602	1	1.86102	99
1.826	0.00644	2	1.83244	98	1.856	0.00601	2	1.86201	98
1.827	0.00642	1	1.83342	99	1.857	0.00599	1	1.86299	99
1.828	0.00641	2	1.83441	98	1.858	0.00598	2	1.86398	98
1.829	0.00639	1	1.83539	99	1.859	0.00597	1	1.86497	99
		2		98			2		98
1.830	0.00638		1.83638		1.860	0.00595		1.86595	

1.380

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.380	0.01774		1.38774		1.410	0.01658		1.42658	
1.381	0.01770	4	1.39870	96	1.411	0.01654	4	1.42754	96
1.382	0.01766	4	1.39966	96	1.412	0.01650	4	1.42850	96
1.383	0.01762	4	1.40062	96	1.413	0.01646	4	1.42946	96
1.384	0.01758	4	1.40158	96	1.414	0.01643	3	1.43043	97
		4		96			4		96
1.385	0.01754		1.40254		1.415	0.01639		1.43139	
1.386	0.01750	4	1.40350	96	1.416	0.01635	4	1.43235	96
1.387	0.01746	4	1.40446	96	1.417	0.01632	3	1.43332	97
1.388	0.01742	4	1.40542	96	1.418	0.01628	4	1.43428	96
1.389	0.01738	4	1.40638	96	1.419	0.01624	4	1.43524	96
		4		96			3		97
1.390	0.01734		1.40734		1.420	0.01621		1.43621	
1.391	0.01730	4	1.40830	96	1.421	0.01617	4	1.43717	96
1.392	0.01726	4	1.40926	96	1.422	0.01613	4	1.43813	96
1.393	0.01722	4	1.41022	96	1.423	0.01610	3	1.43910	97
1.394	0.01719	3	1.41119	97	1.424	0.01606	4	1.44006	96
		4		96			4		96
1.395	0.01715		1.41215		1.425	0.01602		1.44102	
1.396	0.01711	4	1.41311	96	1.426	0.01599	3	1.44199	97
1.397	0.01707	4	1.41407	96	1.427	0.01595	4	1.44295	96
1.398	0.01703	4	1.41503	96	1.428	0.01591	4	1.44391	96
1.399	0.01699	4	1.41599	96	1.429	0.01588	3	1.44488	97
		4		96			4		96
1.400	0.01695		1.41695		1.430	0.01584		1.44584	
1.401	0.01692	3	1.41792	97	1.431	0.01581	3	1.44681	97
1.402	0.01688	4	1.41888	96	1.432	0.01577	4	1.44777	96
1.403	0.01684	4	1.41984	96	1.433	0.01574	3	1.44874	97
1.404	0.01680	4	1.42080	96	1.434	0.01570	4	1.44970	96
		4		96			4		96
1.405	0.01676		1.42176		1.435	0.01566		1.45066	
1.406	0.01673	3	1.42273	97	1.436	0.01563	3	1.45163	97
1.407	0.01669	4	1.42369	96	1.437	0.01559	4	1.45259	96
1.408	0.01665	4	1.42465	96	1.438	0.01556	3	1.45356	97
1.409	0.01661	4	1.42561	96	1.439	0.01552	4	1.45452	96
		3		97			3		97
1.410	0.01658		1.42658		1.440	0.01549		1.45549	

1.440

A	B	Dif.	C	Dif.	A	B	Dif.	C	Dif.
1.440	0.01549		1.45549		1.470	0.01447		1.48447	
1.441	0.01545	4	1.45645	96	1.471	0.01444	3	1.48544	97
1.442	0.01542	3	1.45742	97	1.472	0.01441	3	1.48641	97
1.443	0.01538	4	1.45838	96	1.473	0.01437	4	1.48737	96
1.444	0.01535	3	1.45935	97	1.474	0.01434	3	1.48834	97
		4		96			3		97
1.445	0.01531		1.46031		1.475	0.01431		1.48931	
1.446	0.01528	3	1.46128	97	1.476	0.01428	3	1.49028	97
1.447	0.01525	3	1.46225	97	1.477	0.01424	4	1.49124	96
1.448	0.01521	4	1.46321	96	1.478	0.01421	3	1.49221	97
1.449	0.01518	3	1.46418	97	1.479	0.01418	3	1.49318	97
		4		96			3		97
1.450	0.01514		1.46514		1.480	0.01415		1.49415	
1.451	0.01511	3	1.46611	97	1.481	0.01412	3	1.49512	97
1.452	0.01507	4	1.46707	96	1.482	0.01408	4	1.49608	96
1.453	0.01504	3	1.46804	97	1.483	0.01405	3	1.49705	97
1.454	0.01501	3	1.46901	97	1.484	0.01402	3	1.49802	97
		4		96			3		97
1.455	0.01497		1.46997		1.485	0.01399		1.49899	
1.456	0.01494	3	1.47094	97	1.486	0.01396	3	1.49996	97
1.457	0.01490	4	1.47190	96	1.487	0.01393	3	1.50093	97
1.458	0.01487	3	1.47287	97	1.488	0.01389	4	1.50189	96
1.459	0.01484	3	1.47384	97	1.489	0.01386	3	1.50286	97
		4		96			3		97
1.460	0.01480		1.47480		1.490	0.01383		1.50383	
1.461	0.01477	3	1.47577	97	1.491	0.01380	3	1.50480	97
1.462	0.01474	3	1.47674	97	1.492	0.01377	3	1.50577	97
1.463	0.01470	4	1.47770	96	1.493	0.01374	3	1.50674	97
1.464	0.01467	3	1.47867	97	1.494	0.01371	3	1.50771	97
		3		97			3		97
1.465	0.01464		1.47964		1.495	0.01368		1.50868	
1.466	0.01460	4	1.48060	96	1.496	0.01364	4	1.50964	96
1.467	0.01457	3	1.48157	97	1.497	0.01361	3	1.51061	97
1.468	0.01454	3	1.48254	97	1.498	0.01358	3	1.51158	97
1.469	0.01450	4	1.48350	96	1.499	0.01355	3	1.51255	97
		3		97			3		97
1.470	0.01447		1.48447		1.500	0.01352		1.51352	

1.500

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.5000	0.01352		1.51352		1.5300	0.01263		1.54263	
1.5010	0.01349	3	1.51449	97	1.5310	0.01260	3	1.54360	97
1.5020	0.01346	3	1.51546	97	1.5320	0.01257	3	1.54457	97
1.5030	0.01343	3	1.51643	97	1.5330	0.01255	2	1.54555	98
1.5040	0.01340	3	1.51740	97	1.5340	0.01252	3	1.54652	97
		3		97			3		97
1.5050	0.01337		1.51837		1.5350	0.01249		1.54749	
1.5060	0.01334	3	1.51934	97	1.5360	0.01246	3	1.54846	97
1.5070	0.01331	3	1.52031	97	1.5370	0.01243	3	1.54943	97
1.5080	0.01328	3	1.52128	97	1.5380	0.01240	2	1.55040	97
1.5090	0.01325	3	1.52225	97	1.5390	0.01238	3	1.55138	98
		3		97			3		97
1.5100	0.01322		1.52322		1.5400	0.01235		1.55235	
1.5110	0.01319	3	1.52419	97	1.5410	0.01232	3	1.55332	97
1.5120	0.01316	3	1.52516	97	1.5420	0.01229	3	1.55429	97
1.5130	0.01313	3	1.52613	97	1.5430	0.01226	3	1.55526	97
1.5140	0.01310	3	1.52710	97	1.5440	0.01224	2	1.55624	98
		3		97			3		97
1.5150	0.01307		1.52807		1.5450	0.01221		1.55721	
1.5160	0.01304	3	1.52904	97	1.5460	0.01218	3	1.55818	97
1.5170	0.01301	3	1.53001	97	1.5470	0.01215	3	1.55915	97
1.5180	0.01298	3	1.53098	97	1.5480	0.01213	2	1.56013	98
1.5190	0.01295	3	1.53195	97	1.5490	0.01210	3	1.56110	97
		3		97			3		97
1.5200	0.01292		1.53292		1.5500	0.01207		1.56207	
1.5210	0.01289	3	1.53389	97	1.5510	0.01204	3	1.56304	97
1.5220	0.01286	3	1.53486	97	1.5520	0.01202	2	1.56402	98
1.5230	0.01283	3	1.53583	97	1.5530	0.01199	3	1.56499	97
1.5240	0.01280	3	1.53680	97	1.5540	0.01196	3	1.56596	97
		2		98			3		97
1.5250	0.01278		1.53778		1.5550	0.01193		1.56693	
1.5260	0.01275	3	1.53875	97	1.5560	0.01191	2	1.56791	98
1.5270	0.01272	3	1.53972	97	1.5570	0.01188	3	1.56888	97
1.5280	0.01269	3	1.54069	97	1.5580	0.01185	3	1.56985	97
1.5290	0.01266	3	1.54166	97	1.5590	0.01183	2	1.57083	98
		3		97			3		97
1.5300	0.01263		1.54263		1.5600	0.01180		1.57180	

1.560

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.560	0.01180		1.57180		1.590	0.01102		1.60102	
1.561	0.01177	3	1.57277	97	1.591	0.01100	2	1.60200	98
1.562	0.01175	2	1.57375	98	1.592	0.01097	3	1.60297	97
1.563	0.01172	3	1.57472	97	1.593	0.01095	2	1.60395	98
1.564	0.01169	3	1.57569	97	1.594	0.01092	3	1.60492	97
		2		98			2		98
1.565	0.01167		1.57667		1.595	0.01090		1.60590	
1.566	0.01164	3	1.57764	97	1.596	0.01087	3	1.60687	97
1.567	0.01161	3	1.57861	97	1.597	0.01085	2	1.60785	98
1.568	0.01159	2	1.57959	98	1.598	0.01082	3	1.60882	97
1.569	0.01156	3	1.58056	97	1.599	0.01080	2	1.60980	98
		3		97			3		97
1.570	0.01153		1.58153		1.600	0.01077		1.61077	
1.571	0.01151	2	1.58251	98	1.601	0.01075	2	1.61175	98
1.572	0.01148	3	1.58348	97	1.602	0.01073	2	1.61273	98
1.573	0.01146	2	1.58446	98	1.603	0.01070	3	1.61370	97
1.574	0.01143	3	1.58543	97	1.604	0.01068	2	1.61468	98
		3		97			3		97
1.575	0.01140		1.58640		1.605	0.01065		1.61565	
1.576	0.01138	2	1.58738	98	1.606	0.01063	2	1.61663	98
1.577	0.01135	3	1.58835	97	1.607	0.01060	3	1.61760	97
1.578	0.01133	2	1.58933	98	1.608	0.01058	2	1.61858	98
1.579	0.01130	3	1.59030	97	1.609	0.01056	2	1.61956	98
		2		98			3		97
1.580	0.01128		1.59128		1.610	0.01053		1.62053	
1.581	0.01125	3	1.59225	97	1.611	0.01051	2	1.62151	98
1.582	0.01122	3	1.59322	97	1.612	0.01048	3	1.62248	97
1.583	0.01120	2	1.59420	98	1.613	0.01046	2	1.62346	98
1.584	0.01117	3	1.59517	97	1.614	0.01044	2	1.62444	98
		2		98			3		97
1.585	0.01115		1.59615		1.615	0.01041		1.62541	
1.586	0.01112	3	1.59712	97	1.616	0.01039	2	1.62639	98
1.587	0.01110	2	1.59810	98	1.617	0.01037	2	1.62737	97
1.588	0.01107	3	1.59907	97	1.618	0.01034	3	1.62834	98
1.589	0.01105	2	1.60005	98	1.619	0.01032	2	1.62932	98
		3		97			2		98
1.590	0.01102		1.60102		1.620	0.01030		1.63030	

1.620

A	B	Dif.	C	Dif.	A	B	Dif.	C	Dif.
1.6200.01030			1.63030		1.6500.00962			1.65962	
1.6210.01027	3		1.63127	97	1.6510.00959	3		1.66059	97
1.6220.01025	2		1.63225	98	1.6520.00957	2		1.66157	98
1.6230.01022	3		1.63322	97	1.6530.00955	2		1.66255	98
1.6240.01020	2		1.63420	98	1.6540.00953	2		1.66353	98
	2			98					
1.6250.01018			1.63518		1.6550.00951			1.66451	
1.6260.01016	2		1.63616	98	1.6560.00948	3		1.66548	97
1.6270.01013	3		1.63713	97	1.6570.00946	2		1.66646	98
1.6280.01011	2		1.63811	98	1.6580.00944	2		1.66744	98
1.6290.01009	2		1.63909	98	1.6590.00942	2		1.66842	98
	3			97					98
1.6300.01008			1.64008		1.6600.00940			1.66940	
1.6310.01004	2		1.64104	98	1.6610.00938	2		1.67038	98
1.6320.01002	2		1.64202	98	1.6620.00936	2		1.67136	98
1.6330.00999	3		1.64299	97	1.6630.00933	3		1.67233	97
1.6340.00997	2		1.64397	98	1.6640.00931	2		1.67331	98
	2			98					
1.6350.00995			1.64495		1.6650.00929			1.67429	
1.6360.00993	2		1.64593	98	1.6660.00927	2		1.67527	98
1.6370.00990	3		1.64690	97	1.6670.00925	2		1.67625	98
1.6380.00988	2		1.64788	98	1.6680.00923	2		1.67723	98
1.6390.00986	2		1.64886	98	1.6690.00921	2		1.67821	98
	2			98					
1.6400.00984			1.64984		1.6700.00919			1.67919	
1.6410.00981	3		1.65081	97	1.6710.00917	2		1.68017	98
1.6420.00979	2		1.65179	98	1.6720.00915	2		1.68115	98
1.6430.00977	2		1.65277	98	1.6730.00912	3		1.68212	97
1.6440.00975	2		1.65375	98	1.6740.00910	2		1.68310	98
	2			98					98
1.6450.00973			1.65473		1.6750.00908			1.68408	
1.6460.00970	3		1.65570	97	1.6760.00906	2		1.68506	98
1.6470.00968	2		1.65668	98	1.6770.00904	2		1.68604	98
1.6480.00966	2		1.65766	98	1.6780.00902	2		1.68702	98
1.6490.00964	2		1.65864	98	1.6790.00900	2		1.68800	98
	2			98					98
1.6500.00962			1.65962		1.6800.00898			1.68898	

1680

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.6800.00898			1.68898		1.7100.00839			1.71839	
1.6810.00896	2		1.68996	98	1.7110.00837	2		1.71937	98
1.6820.00894	2		1.69094	98	1.7120.00835	2		1.72035	98
1.6830.00892	2		1.69192	98	1.7130.00833	2		1.72133	98
1.6840.00890	2		1.69290	98	1.7140.00831	2		1.72231	98
1.6850.00888			1.69388		1.7150.00829	2		1.72329	
1.6860.00886	2		1.69486	98	1.7160.00827	2		1.72427	98
1.6870.00884	2		1.69584	98	1.7170.00825	2		1.72525	98
1.6880.00882	2		1.69682	98	1.7180.00823	1		1.72623	99
1.6890.00880	2		1.69780	98	1.7190.00822	2		1.72722	98
1.6900.00878			1.69878		1.7200.00820	2		1.72820	
1.6910.00876	2		1.69976	98	1.7210.00818	2		1.72918	98
1.6920.00874	2		1.70074	98	1.7220.00816	2		1.73016	98
1.6930.00872	2		1.70172	98	1.7230.00814	2		1.73114	98
1.6940.00870	2		1.70270	98	1.7240.00812	2		1.73212	98
1.6950.00868			1.70368		1.7250.00810	1		1.73310	
1.6960.00866	2		1.70466	98	1.7260.00809	2		1.73409	99
1.6970.00864	2		1.70564	98	1.7270.00807	2		1.73507	98
1.6980.00862	2		1.70662	98	1.7280.00805	2		1.73605	98
1.6990.00860	2		1.70760	98	1.7290.00803	2		1.73703	98
1.7000.00858			1.70858		1.7300.00801	2		1.73801	
1.7010.00856	2		1.70956	98	1.7310.00799	1		1.73899	98
1.7020.00854	2		1.71054	98	1.7320.00798	2		1.73998	99
1.7030.00852	2		1.71152	98	1.7330.00796	2		1.74096	98
1.7040.00850	2		1.71250	98	1.7340.00794	2		1.74194	98
1.7050.00848			1.71348		1.7350.00792	2		1.74292	
1.7060.00846	2		1.71446	98	1.7360.00790	1		1.74390	99
1.7070.00844	2		1.71544	98	1.7370.00789	2		1.74489	98
1.7080.00842	2		1.71642	98	1.7380.00787	2		1.74587	98
1.7090.00841	1		1.71741	99	1.7390.00785	2		1.74685	98
	2			98					
1.7100.00839			1.71839		1.7400.00783			1.74783	

1.740

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.740	0.00783		1.74788		1.770	0.00731		1.77781	
1.741	0.00781	2	1.74881	98	1.771	0.00730	1	1.77830	99
1.742	0.00780	1	1.74980	99	1.772	0.00728	2	1.77928	98
1.743	0.00778	2	1.75078	98	1.773	0.00726	2	1.78026	98
1.744	0.00776	2	1.75176	98	1.774	0.00725	1	1.78125	99
		2		98			2		98
1.745	0.00774		1.75274		1.775	0.00723		1.78223	
1.746	0.00773	1	1.75373	99	1.776	0.00721	2	1.78321	98
1.747	0.00771	2	1.75471	98	1.777	0.00720	1	1.78420	99
1.748	0.00769	2	1.75569	98	1.778	0.00718	2	1.78518	98
1.749	0.00767	2	1.75667	98	1.779	0.00716	2	1.78616	98
		1		99			1		99
1.750	0.00766		1.75766		1.780	0.00715		1.78715	
1.751	0.00764	2	1.75864	98	1.781	0.00713	2	1.78813	98
1.752	0.00762	2	1.75962	98	1.782	0.00712	1	1.78912	99
1.753	0.00760	2	1.76060	98	1.783	0.00710	2	1.79010	98
1.754	0.00759	1	1.76159	99	1.784	0.00708	2	1.79108	98
		2		98			1		99
1.755	0.00757		1.76257		1.785	0.00707		1.79207	
1.756	0.00755	2	1.76355	98	1.786	0.00705	2	1.79305	98
1.757	0.00753	2	1.76453	98	1.787	0.00703	2	1.79403	98
1.758	0.00752	1	1.76552	99	1.788	0.00702	1	1.79502	99
1.759	0.00750	2	1.76650	98	1.789	0.00700	2	1.79600	98
		2		98			1		99
1.760	0.00748		1.76748		1.790	0.00699		1.79699	
1.761	0.00747	1	1.76847	99	1.791	0.00697	2	1.79797	98
1.762	0.00745	2	1.76945	98	1.792	0.00696	1	1.79896	99
1.763	0.00743	2	1.77043	98	1.793	0.00694	2	1.79994	98
1.764	0.00741	2	1.77141	98	1.794	0.00692	2	1.80092	98
		1		99			1		99
1.765	0.00740		1.77240		1.795	0.00691		1.80191	
1.766	0.00738	2	1.77338	98	1.796	0.00689	2	1.80289	98
1.767	0.00736	2	1.77436	98	1.797	0.00688	1	1.80388	99
1.768	0.00735	1	1.77535	99	1.798	0.00686	2	1.80486	98
1.769	0.00733	2	1.77633	98	1.799	0.00684	2	1.80584	98
		2		98			1		99
1.770	0.00731		1.77781		1.800	0.00683		1.80683	

1.800

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.800	0.00683		1.80683		1.830	0.00638		1.83638	
1.801	0.00681	2	1.80781	98	1.831	0.00636	2	1.83736	98
1.802	0.00680	1	1.80880	99	1.832	0.00635	1	1.83835	99
1.803	0.00678	2	1.80978	98	1.833	0.00633	2	1.83933	98
1.804	0.00677	1	1.81077	99	1.834	0.00632	1	1.84032	99
		2		98			2		98
1.805	0.00675	1	1.81175		1.835	0.00630		1.84130	
1.806	0.00674	2	1.81274	99	1.836	0.00629	1	1.84229	99
1.807	0.00672	1	1.81372	98	1.837	0.00628	2	1.84328	99
1.808	0.00671	2	1.81471	99	1.838	0.00626	1	1.84426	98
1.809	0.00669	1	1.81569	98	1.839	0.00625	2	1.84525	99
		2		98			1		98
1.810	0.00667		1.81667		1.840	0.00623		1.84623	
1.811	0.00666	1	1.81766	99	1.841	0.00622	1	1.84722	99
1.812	0.00664	2	1.81864	98	1.842	0.00620	2	1.84820	98
1.813	0.00663	1	1.81963	99	1.843	0.00619	1	1.84919	99
1.814	0.00661	2	1.82061	98	1.844	0.00618	2	1.85018	99
		1		99			1		98
1.815	0.00660		1.82160		1.845	0.00616		1.85116	
1.816	0.00658	2	1.82258	98	1.846	0.00615	1	1.85215	99
1.817	0.00657	1	1.82357	99	1.847	0.00613	2	1.85313	98
1.818	0.00655	2	1.82455	98	1.848	0.00612	1	1.85412	99
1.819	0.00654	1	1.82554	99	1.849	0.00611	2	1.85511	99
		2		98			1		98
1.820	0.00652		1.82652		1.850	0.00609		1.85609	
1.821	0.00651	1	1.82751	99	1.851	0.00608	1	1.85708	99
1.822	0.00649	2	1.82849	98	1.852	0.00606	2	1.85806	98
1.823	0.00648	1	1.82948	99	1.853	0.00605	1	1.85905	99
1.824	0.00646	2	1.83046	98	1.854	0.00604	2	1.86004	99
		1		99			1		98
1.825	0.00645		1.83145		1.855	0.00602		1.86102	
1.826	0.00644	1	1.83244	99	1.856	0.00601	1	1.86201	99
1.827	0.00642	2	1.83342	98	1.857	0.00599	2	1.86299	98
1.828	0.00641	1	1.83441	99	1.858	0.00598	1	1.86398	99
1.829	0.00639	2	1.83539	98	1.859	0.00597	2	1.86497	99
		1		99			1		98
1.830	0.00638		1.83638		1.860	0.00595		1.86595	

1.860

A	B	Dif.	C	Dif.	A	B	Dif.	C	Dif.
1.860	0.00595		1.86595		1.890	0.00556		1.89556	
1.861	0.00594	1	1.86694	99	1.891	0.00555	1	1.89655	99
1.862	0.00593	1	1.86793	99	1.892	0.00553	2	1.89753	98
1.863	0.00591	2	1.86891	98	1.893	0.00552	1	1.89852	99
1.864	0.00590	1	1.86990	99	1.894	0.00551	1	1.89951	99
		1		99			1		99
1.865	0.00589	2	1.87089	98	1.895	0.00550	2	1.90050	98
1.866	0.00587	1	1.87187	99	1.896	0.00548	1	1.90148	99
1.867	0.00586	1	1.87286	99	1.897	0.00547	1	1.90247	99
1.868	0.00585	1	1.87385	99	1.898	0.00546	1	1.90346	99
1.869	0.00583	2	1.87483	98	1.899	0.00545	1	1.90445	99
		1		99			2		98
1.870	0.00582		1.87582		1.900	0.00543		1.90543	
1.871	0.00581	1	1.87681	99	1.901	0.00542	1	1.90642	99
1.872	0.00579	2	1.87779	98	1.902	0.00541	1	1.90741	99
1.873	0.00578	1	1.87878	99	1.903	0.00540	1	1.90840	99
1.874	0.00577	1	1.87977	99	1.904	0.00538	2	1.90938	98
		2		98			1		99
1.875	0.00575		1.88075		1.905	0.00537		1.91037	
1.876	0.00574	1	1.88174	99	1.906	0.00536	1	1.91136	99
1.877	0.00573	1	1.88273	99	1.907	0.00535	1	1.91235	99
1.878	0.00571	2	1.88371	98	1.908	0.00533	2	1.91333	98
1.879	0.00570	1	1.88470	99	1.909	0.00532	1	1.91432	99
		1		99			1		99
1.880	0.00569		1.88569		1.910	0.00531		1.91531	
1.881	0.00567	2	1.88667	98	1.911	0.00530	1	1.91630	99
1.882	0.00566	1	1.88766	99	1.912	0.00529	1	1.91729	99
1.883	0.00565	1	1.88865	99	1.913	0.00527	2	1.91827	98
1.884	0.00564	1	1.88964	99	1.914	0.00526	1	1.91926	99
		2		98			1		99
1.885	0.00562		1.89062		1.915	0.00525		1.92025	
1.886	0.00561	1	1.89161	99	1.916	0.00524	1	1.92124	99
1.887	0.00560	1	1.89260	99	1.917	0.00523	1	1.92223	99
1.888	0.00558	2	1.89358	98	1.918	0.00521	2	1.92321	98
1.889	0.00557	1	1.89457	99	1.919	0.00520	1	1.92420	99
		1		99			1		99
1.890	0.00556		1.89556		1.920	0.00519		1.92519	

1·920

A	B	Dif.	C	Dif.	A	B	Dif.	C	Dif.
1·920	0·00519	I	1·92519	99	1·950	0·00485	I	1·95485	98
I·921	0·00518	I	I·92618	99	I·951	0·00483	I	I·95583	99
I·922	0·00517	I	I·92717	98	I·952	0·00482	I	I·95682	99
I·923	0·00515	2	I·92815	99	I·953	0·00481	I	I·95781	99
I·924	0·00514	I	I·92914	99	I·954	0·00480	I	I·95880	99
I·925	0·00513	I	I·93013	99	I·955	0·00479	I	I·95979	99
I·926	0·00512	I	I·93112	99	I·956	0·00478	I	I·96078	99
I·927	0·00511	I	I·93211	99	I·957	0·00477	I	I·96177	99
I·928	0·00510	I	I·93310	98	I·958	0·00476	I	I·96276	99
I·929	0·00508	2	I·93408	99	I·959	0·00475	I	I·96375	99
1·930	0·00507	I	1·93507	99	1·960	0·00474	I	1·96474	99
I·931	0·00506	I	I·93606	99	I·961	0·00473	2	I·96573	98
I·932	0·00505	I	I·93705	99	I·962	0·00471	I	I·96671	99
I·933	0·00504	I	I·93804	99	I·963	0·00470	I	I·96770	99
I·934	0·00503	I	I·93903	99	I·964	0·00469	I	I·96869	99
I·935	0·00502	2	I·94002	98	I·965	0·00468	I	I·96968	99
I·936	0·00500	I	I·94100	99	I·966	0·00467	I	I·97067	99
I·937	0·00499	I	I·94199	99	I·967	0·00466	I	I·97166	99
I·938	0·00498	I	I·94298	99	I·968	0·00465	I	I·97265	99
I·939	0·00497	I	I·94397	99	I·969	0·00464	I	I·97364	99
1·940	0·00496	I	1·94496	99	1·970	0·00463	I	1·97463	99
I·941	0·00495	I	I·94595	99	I·971	0·00462	I	I·97562	99
I·942	0·00494	I	I·94694	98	I·972	0·00461	I	I·97661	99
I·943	0·00492	2	I·94792	99	I·973	0·00460	I	I·97760	99
I·944	0·00491	I	I·94891	99	I·974	0·00459	I	I·97859	99
I·945	0·00490	I	I·94990	99	I·975	0·00458	I	I·97958	99
I·946	0·00489	I	I·95089	99	I·976	0·00457	I	I·98057	99
I·947	0·00488	I	I·95188	99	I·977	0·00456	2	I·98156	98
I·948	0·00487	I	I·95287	99	I·978	0·00454	I	I·98254	99
I·949	0·00486	I	I·95386	99	I·979	0·00453	I	I·98353	99
1·950	0·00485	I	1·95485	99	1·980	0·00452	I	1·98452	99

1980

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
1.8800	0.00452	I	1.88452		2.100	0.00344		2.10344	
1.981	0.00451	I	1.98551	99	2.11	0.00336	8	2.11336	992
1.982	0.00450	I	1.98650	99	2.12	0.00328	7	2.12328	992
1.983	0.00449	I	1.98749	99	2.13	0.00321	8	2.13321	993
1.984	0.00448	I	1.98848	99	2.14	0.00313	7	2.14313	992
									993
1.985	0.00447	I	1.98947		2.15	0.00306		2.15306	
1.986	0.00446	I	1.99046	99	2.16	0.00299	7	2.16299	993
1.987	0.00445	I	1.99145	99	2.17	0.00293	6	2.17293	994
1.988	0.00444	I	1.99244	99	2.18	0.00286	7	2.18286	993
1.989	0.00443	I	1.99343	99	2.19	0.00280	6	2.19280	994
							7		993
1.8800	0.00442	I	1.88442		2.200	0.00273		2.20273	
1.991	0.00441	I	1.99541	99	2.21	0.00267	6	2.21267	994
1.992	0.00440	I	1.99640	99	2.22	0.00261	6	2.22261	994
1.993	0.00439	I	1.99739	99	2.23	0.00255	6	2.23255	994
1.994	0.00438	I	1.99838	99	2.24	0.00249	6	2.24249	994
							5		995
1.995	0.00437	I	1.99937		2.25	0.00244		2.25244	
1.996	0.00436	I	2.00036	99	2.26	0.00238	6	2.26238	994
1.997	0.00435	I	2.00135	99	2.27	0.00233	5	2.27233	995
1.998	0.00434	I	2.00234	99	2.28	0.00227	6	2.28227	994
1.999	0.00433	I	2.00333	99	2.29	0.00222	5	2.29222	995
							5		995
2.000	0.00432	10	2.00432		2.300	0.00217		2.30217	
2.01	0.00422	9	2.01422	990	2.31	0.00212	5	2.31212	995
2.02	0.00413	10	2.02413	991	2.32	0.00207	5	2.32207	995
2.03	0.00403	9	2.03403	990	2.33	0.00203	4	2.33203	996
2.04	0.00394	9	2.04394	991	2.34	0.00198	5	2.34198	995
							4		996
2.05	0.00385	8	2.05385	992	2.35	0.00194		2.35194	
2.06	0.00377	9	2.06377	991	2.36	0.00189	5	2.36189	995
2.07	0.00368	8	2.07368	992	2.37	0.00185	4	2.37185	996
2.08	0.00360	8	2.08360	992	2.38	0.00181	4	2.38181	996
2.09	0.00352	8	2.09352	992	2.39	0.00177	4	2.39177	996
2.10	0.00344		2.10344		2.400	0.00173		2.40173	

2.40

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
2.40	0.00173		2.40173		2.70	0.00087		2.70087	
2.41	0.00169	4	2.41169	996	2.71	0.00085	2	2.71085	998
2.42	0.00165	4	2.42165	996	2.72	0.00083	2	2.72083	998
2.43	0.00161	4	2.43161	996	2.73	0.00081	2	2.73081	998
2.44	0.00157	4	2.44157	996	2.74	0.00079	2	2.74079	998
		3		997			2		
2.45	0.00154	4	2.45154	996	2.75	0.00077	2	2.75077	998
2.46	0.00150	3	2.46150	997	2.76	0.00075	1	2.76075	999
2.47	0.00147	3	2.47147	997	2.77	0.00074	2	2.77074	998
2.48	0.00144	4	2.48144	996	2.78	0.00072	2	2.78072	998
2.49	0.00140	3	2.49140	997	2.79	0.00070	1	2.79070	999
2.50	0.00137		2.50137		2.80	0.00069		2.80069	
2.51	0.00134	3	2.51134	997	2.81	0.00067	2	2.81067	998
2.52	0.00131	3	2.52131	997	2.82	0.00066	1	2.82066	999
2.53	0.00128	3	2.53128	997	2.83	0.00064	2	2.83064	998
2.54	0.00125	3	2.54125	997	2.84	0.00063	1	2.84063	999
		3		997			2		998
2.55	0.00122	3	2.55122	997	2.85	0.00061	1	2.85061	999
2.56	0.00119	2	2.56119	998	2.86	0.00060	1	2.86060	999
2.57	0.00117	3	2.57117	997	2.87	0.00059	2	2.87059	998
2.58	0.00114	3	2.58114	997	2.88	0.00057	1	2.88057	999
2.59	0.00111	2	2.59111	998	2.89	0.00056	1	2.89056	999
2.60	0.00109		2.60109		2.90	0.00055		2.90055	
2.61	0.00106	3	2.61106	997	2.91	0.00053	2	2.91053	998
2.62	0.00104	2	2.62104	998	2.92	0.00052	1	2.92052	999
2.63	0.00102	3	2.63102	997	2.93	0.00051	1	2.93051	999
2.64	0.00099	2	2.64099	998	2.94	0.00050	1	2.94050	999
2.65	0.00097	2	2.65097	998	2.95	0.00049	1	2.95049	999
2.66	0.00095	2	2.66095	998	2.96	0.00048	1	2.96048	999
2.67	0.00093	2	2.67093	998	2.97	0.00047	2	2.97047	998
2.68	0.00091	2	2.68091	998	2.98	0.00045	1	2.98045	999
2.69	0.00089	2	2.69089	998	2.99	0.00044	1	2.99044	999
2.70	0.00087		2.70087		3.00	0.00043		3.00043	

3.00

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
3.00	0.00043		3.00043		3.30	0.00022		3.30022	
3.01	0.00042	I	3.01042	999	3.31	0.00021	I	3.31021	999
3.02	0.00041	O	3.02041	999	3.32	0.00021	I	3.32021	1000
3.03	0.00041	I	3.03041	1000	3.33	0.00020	O	3.33020	999
3.04	0.00040	I	3.04040	999	3.34	0.00020	I	3.34020	1000
				999					999
3.05	0.00039	I	3.05039	999	3.35	0.00019	O	3.35019	1000
3.06	0.00038	I	3.06038	999	3.36	0.00019	O	3.36019	1000
3.07	0.00037	I	3.07037	999	3.37	0.00019	I	3.37019	999
3.08	0.00036	I	3.08036	999	3.38	0.00018	O	3.38018	1000
3.09	0.00035	I	3.09035	999	3.39	0.00018	I	3.39018	999
				999					999
3.10	0.00034	O	3.10034	1000	3.4	0.00017	3	3.40017	9997
3.11	0.00034	I	3.11034	999	3.5	0.00014	3	3.50014	9997
3.12	0.00033	I	3.12033	999	3.6	0.00011	3	3.60011	9997
3.13	0.00032	I	3.13032	999	3.7	0.00009	2	3.70009	9998
3.14	0.00031	O	3.14031	1000	3.8	0.00007	2	3.80007	9998
				999					9998
3.15	0.00031	I	3.15031	999	3.9	0.00005	I	3.90005	9999
3.16	0.00030	O	3.16030	999	4.0	0.00004	I	4.00004	9999
3.17	0.00029	O	3.17029	999	4.1	0.00003	I	4.10003	9999
3.18	0.00029	I	3.18029	1000	4.2	0.00003	O	4.20003	10000
3.19	0.00028	I	3.19028	999	4.3	0.00002	O	4.30002	9999
				999					10000
3.20	0.00027	O	3.20027	1000	4.4	0.00002	I	4.40002	9999
3.21	0.00027	I	3.21027	999	4.5	0.00001	O	4.50001	10000
3.22	0.00026	O	3.22026	1000	4.6	0.00001	O	4.60001	10000
3.23	0.00026	I	3.23026	1000	4.7	0.00001	O	4.70001	10000
3.24	0.00025	I	3.24025	999	4.8	0.00001	O	4.80001	10000
				999					10000
3.25	0.00024	O	3.25024	1000	4.9	0.00001	I	4.90001	9999
3.26	0.00024	I	3.26024	999	5.0	0.00000		5.00000	
3.27	0.00023	O	3.27023	1000					
3.28	0.00023	I	3.28023	999					
3.29	0.00022	O	3.29022	1000					
				1000					
3.30	0.00022		3.30022						

TABLES
OF
USEFUL CONSTANTS,
WITH THEIR
LOGARITHMS.

3.00

A	B	Diff.	C	Diff.	A	B	Diff.	C	Diff.
3.00	0.00043	I	3.00043		3.30	0.00022	I	3.30022	
3.01	0.00042	I	3.01042	999	3.31	0.00021	I	3.31021	999
3.02	0.00041	O	3.02041	999	3.32	0.00021	I	3.32021	1000
3.03	0.00041	I	3.03041	1000	3.33	0.00020	O	3.33020	999
3.04	0.00040	I	3.04040	999	3.34	0.00020	I	3.34020	1000
				999					999
3.05	0.00039	I	3.05039		3.35	0.00019	O	3.35019	1000
3.06	0.00038	I	3.06038	999	3.36	0.00019	O	3.36019	1000
3.07	0.00037	I	3.07037	999	3.37	0.00019	I	3.37019	999
3.08	0.00036	I	3.08036	999	3.38	0.00018	O	3.38018	1000
3.09	0.00035	I	3.09035	999	3.39	0.00018	I	3.39018	999
				999					999
3.10	0.00034	O	3.10034		3.4	0.00017	3	3.40017	
3.11	0.00034	I	3.11034	1000	3.5	0.00014	3	3.50014	9997
3.12	0.00033	I	3.12033	999	3.6	0.00011	3	3.60011	9997
3.13	0.00032	I	3.13032	999	3.7	0.00009	2	3.70009	9998
3.14	0.00031	O	3.14031	999	3.8	0.00007	2	3.80007	9998
				1000					9998
3.15	0.00031	I	3.15031		3.9	0.00005	I	3.90005	
3.16	0.00030	I	3.16030	999	4.0	0.00004	I	4.00004	9999
3.17	0.00029	O	3.17029	999	4.1	0.00003	I	4.10003	9999
3.18	0.00029	I	3.18029	1000	4.2	0.00003	O	4.20003	10000
3.19	0.00028	I	3.19028	999	4.3	0.00002	I	4.30002	9999
				999			O	4.30002	10000
3.20	0.00027	O	3.20027		4.4	0.00002	I	4.40002	
3.21	0.00027	I	3.21027	1000	4.5	0.00001	O	4.50001	9999
3.22	0.00026	O	3.22026	999	4.6	0.00001	O	4.60001	10000
3.23	0.00026	I	3.23026	1000	4.7	0.00001	O	4.70001	10000
3.24	0.00025	I	3.24025	999	4.8	0.00001	O	4.80001	10000
				999					10000
3.25	0.00024	O	3.25024		4.9	0.00001	I	4.90001	
3.26	0.00024	I	3.26024	1000	5.0	0.00000	I	5.00000	9999
3.27	0.00023	O	3.27023	999					
3.28	0.00023	I	3.28023	1000					
3.29	0.00022	O	3.29022	999					
				1000					
3.30	0.00022		3.30022						

TABLES
OF
USEFUL CONSTANTS,
WITH THEIR
LOGARITHMS.

	Log.
Imperial gallon = 277·274 cubic inches,	2·44291
Cologne mark = 3609 grains,	3·55739
Livre (Poids de Marc) = 7554 grains,	3·87818
Rhineland or Prussian foot = 12·356 inches,	1·09190
Prussian mile = 4·68038 English miles,	0·67028
German mile = 4·61050 English miles,	0·66375
Russian verst = 3500 feet,	3·54407
„ = 0·66288 English miles,	1·82144

Constants relating to the Circle.

		Constant.	Log.
Circumf. of circle = $\pi \times \text{diam.}$,	}	π	3·1415926
Surface of sphere = $\pi (\text{diam.})^2$,			
Area of circle = $\pi \times (\text{radius})^2$,			
Circumf. of circle = $2\pi \times \text{radius}$, . . .		2π	6·2831853
Area of circle = $\frac{1}{4}\pi \times (\text{diam.})^2$, . . .		$\frac{1}{4}\pi$	0·7853982
Surface of sphere = $4\pi \times (\text{radius})^2$, . . .		4π	12·5663706
Volume of sphere = $\frac{1}{6}\pi \times (\text{diam.})^3$, . . .		$\frac{1}{6}\pi$	0·5235988
Volume of sphere = $\frac{4}{3}\pi \times (\text{radius})^3$, . . .		$\frac{4}{3}\pi$	4·1887902
Square of π ,		π^2	9·8696044
Square root of π ,		$\sqrt{\pi}$	1·7724539
Cube root of π ,		$\sqrt[3]{\pi}$	1·4645919
Napierian logarithm of π ,		$\log_e \pi$	1·1447299
360° expressed in seconds,		· ·	1296000
360° expressed in minutes,		· ·	21600
Arc equal radius expressed in seconds,		· ·	206264·8
" in minutes,		· ·	3437·747
" in degrees,		$\frac{180}{\pi}$	57·29578
Length of arc $r'' = \sin r''$,	$\sin r''$	0·000004848	6·68557
Length of arc $r' = \sin r'$,	$\sin r'$	0·000290888	4·46373

Constants relating to Logarithmic Systems.

		Constant.	Log.
Base of Napierian system,	e	2·718281828	0·43429
Modulus of Brigg's system,	M	0·434294482	1·63778
Reciprocal of modulus,	h	2·302585093	0·36222

Constants relating to Gravity.

	Constant.	Lo
Cubic inch of distilled water at 62° F. in grains,	252.458	2.40
" " at 60° F. "	252.500	2.40
" " at 4° C. "	252.89	2.40
Cubic foot of distilled water at 60° F. in oz. av.,	997.31	2.99
" " " in lbs. av.,	62.33184	1.79
Cubic inch of mercury at 32° F. in grains, . .	3438.8	3.53
" " " in lbs. av.,	0.49125	1.69
Seconds pendulum in inches at London, . . .	39.139	1.59
" " at Pole,	$\left. \begin{array}{l} L = 39.118 \\ - \frac{1}{16} \cos 2\lambda, \end{array} \right\}$	1.59
" " at lat. 45°,	39.118	1.59
" " at Equator,	39.018	1.59
Gravity in feet at London,	32.1908	1.50
" at Pole,	32.2552	1.50
" at lat. 45°,	32.1736	1.50
" at Equator,	32.0907	1.50

Constants relating to the Earth (Bessel).

	Constant.	Log
Equatorial radius of the earth in feet, . .	20923600	7.3206
Polar radius " . .	20853657	7.3191
Degree in longitude at Equator,	365186	5.5625
Degree in latitude at Equator,	362750	5.5596
" at lat. 45°,	364566	5.5617
" at Pole,	366396	5.5635
" at lat 52°,	365000	5.5622

Constants relating to French Measures.

	Constant.	Log.
Metre in Paris lines,	443·29593	2·64669
Toise in metres,	1·949037	0·28982
„ in inches,	76·7351	1·88499
Metre in inches,	39·37079	1·59517
Square centimetre in square inches,	0·155006	1·19035
Square inches in square centimetres, . . .	6·45134	0·80965
Kilometre in miles,	0·6214	1·79336
Square kilometre in square miles,	0·38612	1·58672
Hectare in statute acres,	2·47111	0·39289
Kilogramme in grains,	15432·348	4·18843
„ in lbs. avoir,	2·20460	0·34333
„ in lbs. troy,	2·67923	0·42801
Litre in cubic inches,	61·02672	1·78552
„ in imperial pints,	1·76076	0·24570
„ „ gallons,	0·22009	1·34261
Hectolitre in imperial gallons,	22·009	1·34261
„ „ bushels,	2·751	0·43952
„ „ quarters,	0·34390	1·53643

Reduction Multipliers

FOR CONVERTING	Constant.	Log.
Barometric inches (32° F.) into lbs. per. sq. in.	0·49125	1·69131
Barometric millimetres (32° F.) into kilo- grammes per sq. centimetre, }	0·00136	3·13341
Kilogrammes per sq. centimetre into lbs. per sq. inch, }	14·22263	1·15298
Foot-pounds into kilogrammetres,	0·13825	1·14067
Francs per hectare into £ sterling per acre, .	0·01619	2·20917
Francs per hectolitre into shillings per quarter,	2·32632	0·36667

A TABLE OF LOGARITHMS,
For the Mutual Conversion of the MEASURES and WEIGHTS of
ENGLAND, PRUSSIA, AUSTRIA, AND FRANCE.

MEASURES.

ENGLISH.	PRUSSIAN.	AUSTRIAN.	PARIS.	FRENCH.
Foot.	Foot.	Foot.	Foot.	Metre.
0	1·98728	1·98418	1·97234	1·48401
0·01272	0	1·99690	1·98506	1·49673
0·01582	0·00310	0	1·98816	1·49983
0·02766	0·01494	0·01184	0	1·51167
0·51599	0·50327	0·50017	0·48833	0
Sq. Foot.	Sq. Foot.	Sq. Foot.	Sq. Foot.	Sq. Metre.
0	1·97456	1·96836	1·94468	2·96801
0·02544	0	1·99380	1·97012	2·99345
0·03164	0·00620	0	1·97632	2·99965
0·05532	0·02988	0·02368	0	1·02334
1·03198	1·00654	1·00034	0·97666	0
Cub. Foot.	Cub. Foot.	Cub. Foot.	Cub. Foot.	Cub. Metre.
0	1·96184	1·95254	1·91701	2·45202
0·03816	0	1·99070	1·95517	2·49018
0·04746	0·00930	0	1·96448	2·49948
0·08298	0·04482	0·03552	0	2·53501
1·54798	1·50982	1·50052	1·46499	0

WEIGHTS.

ENGLISH.	ENGLISH.	PRUSSIAN.	AUSTRIAN.	FRENCH.
Pound Av.	Pound Tr.	Pound.	Pound.	Kilogramme.
0	0·08468	1·98668	1·90846	1·65665
1·91532	0	1·90200	1·82378	1·57198
0·01332	0·09800	0	1·92178	1·66998
0·09154	0·17622	0·07822	0	1·74820
0·34334	0·42802	0·33002	0·25180	0

